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Systematic Network of Conveyors Speeds Refrigerator Output

All-Steel Cabinet Parts Are Carried Simultaneously Through Operations

By E. J. Ross and H. B. Veith

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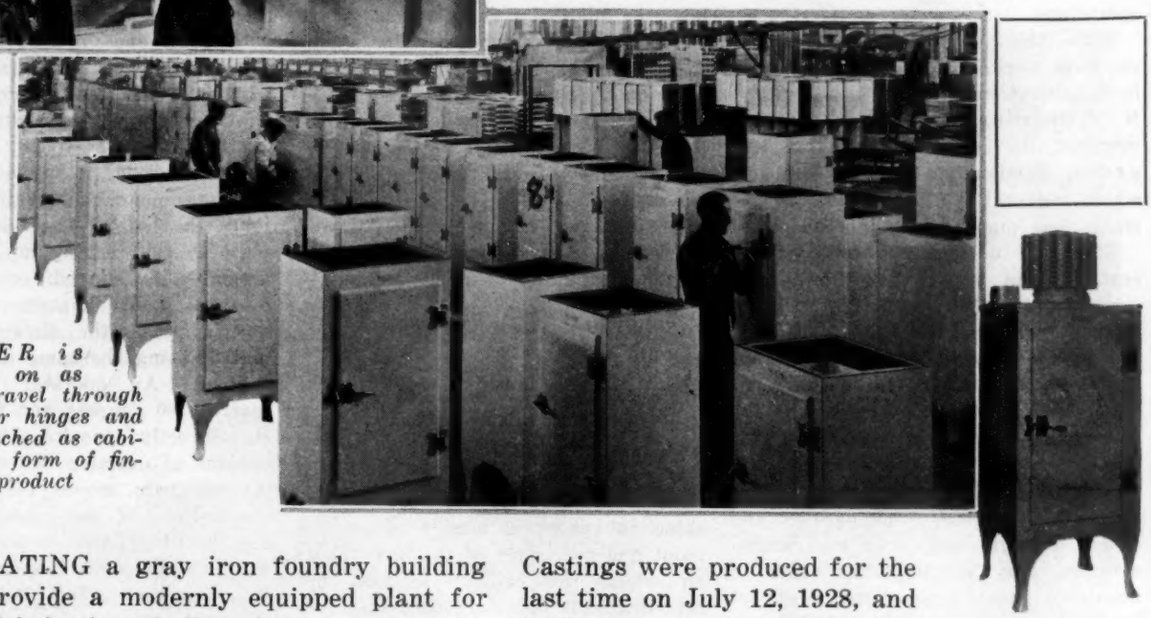
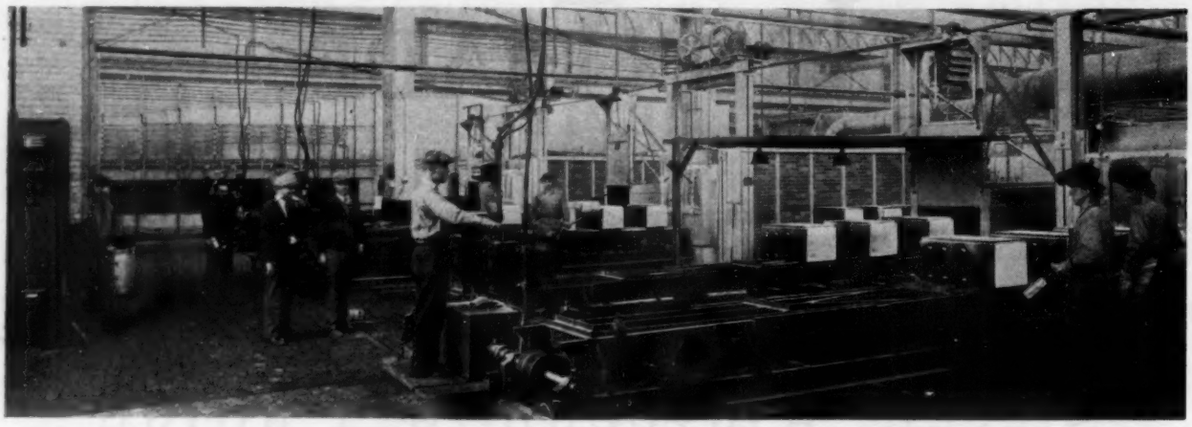


LACQUER is sprayed on as the parts travel through booths. Door hinges and handles attached as cabinet assumes form of finished product

RENOVATING a gray iron foundry building to provide a modernly equipped plant for the fabrication of all-steel refrigerator cabinets on a large scale is no simple task. With market demand imposing pressure and the time element an important factor, it presents a momentous undertaking. Such a situation faced the General Electric Co. at its Erie, Pa., works, when plans were formulated to convert the foundry into a plant to manufacture two sizes of mechanical refrigerators exclusive of the cooling units.

That no time was wasted in negotiating this transition is seen in the accomplishment of producing the first finished cabinet three months after the last heat was poured in the foundry. Castings were produced for the last time on July 12, 1928, and in the latter part of October the first cabinets came off the assembly line. An outstanding example of plant layout employing many conveyors of different types and equipment eliminating as far as possible the human element was responsible for this record.

To change the foundry to its present setup a steam shovel was brought into action to remove the accumulation of foundry sand, a 4-inch thick concrete floor was poured and surfaced with wood blocks, and 3000 gallons of aluminum paint was used to refinish and brighten the interior of the building. Manufacturing equipment, includ-



Inner cases, three at a time, are placed in and removed from the enameling ovens by forks which operate on a track

ing punch and forming presses, automatic arc welding machines, electric furnaces, sand blast equipment, conveyors and lacquer and porcelain apparatus, were brought in and assembled. An entirely new organization was created and placed in charge of operations.

With this background established the Erie works began to produce, and in collaboration with the Schenectady, N. Y. division, it upholds its share in meeting the demand for the two models, particularly the smaller size which adaptability to small apartments has made a popular model.

Efficiency in routing various refrigerator parts after they have been processed by the respective machines is outstanding in the Erie plant, and the timeliness with which the conveying systems deliver the sections of the cabinet to the proper stations for assembling is interesting. Main production and assembly lines run parallel and lengthwise of the plant. Sub-assembly lines, some parallel and others at right angles to the central arteries, play an important role in acquiring mass production. Material handling equipment used in this systematic network includes cranes, belts, overhead chains which travel continuously along a monorail and carry refrigerator parts through the spray booths and electric drying furnaces, slat conveyors of both wood and steel, and roller units which due to inclined position allow the progress of the cabinets to continue either by gravity or by handpower.

Operations Are Much Alike

OPERATIONS for the 4-foot and 10-foot models are much the same, virtually the only difference being the dimensions, and in several cases slight modifications in construction details. This article is concerned chiefly with the production of the smaller cabinet. The initial operation on this cabinet takes place at a large press standing near the steel storage, the material being brought directly into the plant by freight car. Here is an example of efficiency in layout. It is necessary to transport the No. 18 gage furniture sheets for the outer box only a short distance to the first press which blanks and cuts out the door and corners in the 3½ x 6-foot sheet. Due to the proximity of supply, time and energy are saved and there is no delay in feeding the sheets to the first stand of punch presses.

Edges Turned in Press

THE second operation for the outer box is done by a second large press adjacent to the first. In this machine the edges are turned. Further folding is accomplished in the third press and in the fourth machine the sheet is bent to form the front and two sides of the box. Skids on which the cabinet sections are loaded at this point are used to transport them to a hydraulic press where the back is slipped into place, and the two vertical seams joining the back and two sides are pressed flat and locked by pressure.

The backs are made from No. 18 gage sheets in three operations. In the first the sheet is blanked out, after which the edges are turned in the second operation. In the third operation the bend to form the seam is completed. The seams joining the two sides with the back are of an interlocking type so designed that after locking under 500 tons pressure an airtight connection is obtained. Before slipping the back of the cabinet in place and the seams locked, however, the metal coming in contact in the joint is coated with a nonoxidizing grease to prevent rust, corrosion or air leakage after the refrigerator is placed in service.

At this point the cabinet assumes the appearance of a rectangular box with open ends and is ready to receive a bottom. Sheets of No. 18 gage are used to make the bottoms on three presses adjacent to the production line. With nonoxidizing grease thoroughly applied on all surfaces to make contact in the bottom joint, the bottom sheet is dropped in place in the rectangular box and the assembly is slipped, open end first, over a square matrix of a double matrix press, the dimensions of the matrix being the same as that of the cabinet. An operator revolves the matrix 180 degrees and it comes to a stop directly opposite a hydraulic ram capable of exerting 600 tons pressure. As the ram moves forward against the bottom of the cabinet the seams are flattened and locked to provide an air tight joint. During this operation another cabinet is being loaded on the other matrix and made ready to approach the ram.

Cabinet Seams Are Welded

CABINETS are placed door side down on a conveyor and move into a booth where two welders working opposite each other close the ends of the back seams with atomic hydrogen welding equipment. This method is employed because it concentrates the flame and localizes the heating. A partition extending across the center of the upper half of the booth prevents each operator from facing the torch of the other. Passing out of this booth the cabinets

have the welds dressed to smoothness with portable emery wheels.

At this point the cabinets are turned on end upside down and pass under a multiple drill where the 12 holes for securing the legs are drilled. At an adjacent machine the 12 holes are tapped in a multiple tapper. Burrs resulting from the drilling and tapping operations are removed by operators using flexible shaft sanding wheels. Excess grease from the seams is removed and the cabinets are placed on a belt conveyor and travel to the washing machines.

While the numerous operations have been underway for the outer cabinet, other parts have been turned out on adjacent production lines. One of these parts is the inner casing or liner. This part is made from No. 16 gage cover stock, two presses being required. The first punches several holes and blanks out the louvers, or projections which serve to support the wire food shelves; the second press completes the louvers and folds the sheet to constitute three sides of the box. A bottom for the liner is made in four press operations, while a narrow strengthening strip for joining the two sides at the top completes the parts for the inner case. The bottom is attached to the sides and back by automatic arc welding, a butt joint being made along the two sides and the back. Six welding machines are kept constantly at work. As the welding head travels along, an electrode closes the seam, except on the extreme corners. After the seams are dressed with portable grinders, the corners are welded by hand arc welders. Airtightness of these seams is essential in order to obtain a proper base for the porcelain interior finish. The strengthening bar is welded across the front of the top of the liner by arc welding.

To facilitate suspending the liners on the overhead conveyor during porcelain spraying and glazing in the furnace, two small ears are spot welded on each side of the closed end. These ears are removed as a step in final assembly. The liner now is ready for the washing process.

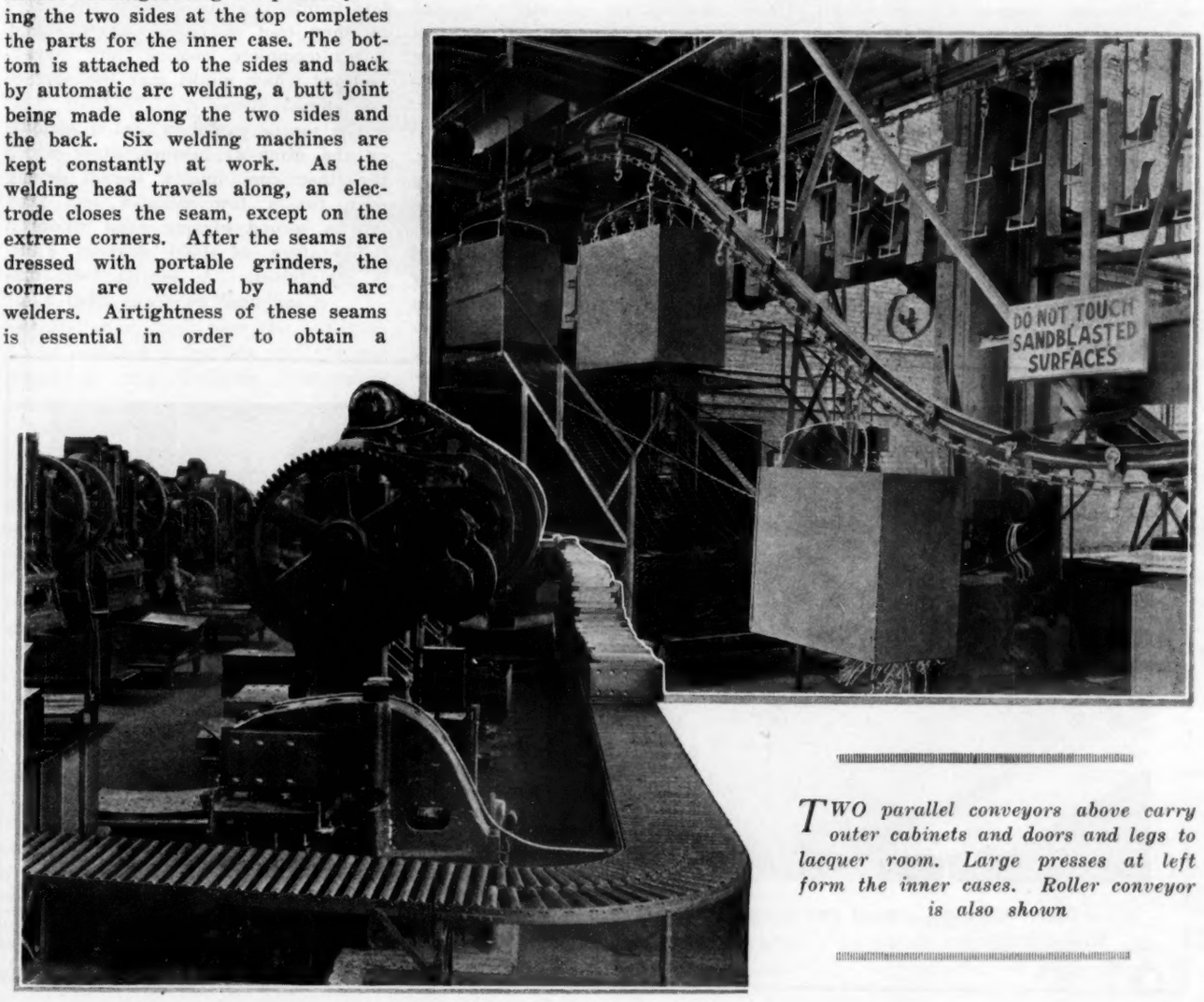
Five Operations Required

THE outer cabinet door is made in five operations. After the sheet is is blanked out in the press and holes punched the subsequent operations consist in turning back the edge of the sheet 180 degrees in such a way as to leave a round edge, and a door thickness of ¾-inch. The mitred joints thus formed at the four corners on the inside of the door are oxyacetylene welded, after with the welds are ground and buffed to smoothness. Now the outer door is ready for washing.

Along a sub-assembly line, which terminates at the washer, the inner cabinet door is pressed into shape. The piece blanked out to form the door in the first operation of making the outer box constitutes the stock in this case, two operations being required to form it into proper shape. Holes are punched for screws, since a bakelite strip, a nonconductor of heat, unites the inner and outer sections of the cabinet door. The flanges in which the holes are made provide the means of attaching the door sections together.

Legs for the cabinet are completed in three operations. They are received at the plant already blanked out of 3/32-inch material and with the bolt holes punched, but it is necessary to coin each piece to remove the sharp edge and press them into finished shape. The legs now pass to the washing machine.

At this stage of fabrication both inner and outer sections of the cabinet are ready to be prepared for the application of lacquer or porcelain as required. The outer cases are lacquered on the outside and the liners are surfaced with poreclain on the inside. Preparation for the lac-



TWO parallel conveyors above carry outer cabinets and doors and legs to lacquer room. Large presses at left form the inner cases. Roller conveyor is also shown

quer and enameling process consists of a thorough washing in a modern washing machine through which the parts are passed on a moving conveyor.

Following this the parts are rinsed and dried, after which the sand blast applies the finishing cleaning touches. Parts subjected to the sand blast are the inside and outside cases, inner and outer doors and the legs. Operators clothed in special suits and helmets equipped with pure air breathing attachment, work inside the booths where they sand blast the cabinet parts as they are fed to them through vents in the sides of the quarters. Rubber gloves protect the workers' hands from the blast. They work 20-minute intervals between which a new turn of operators relieves them. Smaller parts are sand blasted in machines having revolving tables to carry the work while passing under the blast. Aside from cleaning the surface of the metal parts, the sand also etches the surfaces and aids the lacquer and porcelain in adhering.

Two slowly moving overhead conveyors pass by the sand blast machines. One is equipped with hangers on which the cabinets are suspended and pass directly into the lacquer room. The second conveyor, parallel to the first, has hangers on which the outer doors and legs are hung for passage to the lacquer department. The liners are placed on a moving belt passing over the monorail conveyors and which carries the liners up over the two overhead conveyors and down again with a terminus in the porcelain department. The inner doors, however, are piled on skids and move by truck to the porcelain division.

The lacquer room is set apart by a partition from the remainder of the plant. The two overhead conveyors moving at the rate of 8 feet per minute, pass through the spraying booths in the lacquer room. The conveyor bearing the cabinets passes a booth on the ground floor and the other conveyor with the outer door and legs through a booth on the balcony. At these stations the first coat of lacquer is sprayed on. Suction fans draw the excess finely sprayed lacquer from the booths.

Dried at Room Temperature

BEING carried by conveyor, parts have an opportunity to dry in air at room temperature for 90 minutes before arriving at a second similarly arranged spray booth for application of the second coat of lacquer. This time they move through an oven for 25 minutes heated to 100 degrees Fahr. Emerging from this oven the parts pass a third spray booth where the final lacquer coat is applied. The drying after this coat is the same as after the second coat. Upon passing out of the oven the cabinets and other parts are inspected and prepared for a 24-hour storage period prior to being placed on the assembly line.

Application of porcelain to the liners is not as simple as lacquering. The first or ground coat is of a bluish cast and into it the liner is dipped and agitated until the surface is covered thoroughly. Placed upside down on a roller conveyor they go into a drying oven in which the water is evaporated, leaving the finely ground glass covering the surface of the metal. The furnace in which this is done is heated by steam to a temperature of 200 degrees. After 15 minutes the liners are ready to be transferred to the glazing furnace. This unit is of the box type, 260-kilowatt, 200-volt, 3-phase. Inside dimensions are 12 feet deep, by 4 feet wide, by 28 inches high. The liners are transferred from the evaporating oven to the glazing furnace by means of a machine equipped with forks which reach into the heating chamber and withdraw three cabinet liners, move to the right and place them into the adjacent chamber. After 3 to 3½ minutes in a temperature of 1600 degrees Fahr. the porcelain has been fused and the cases are removed.

The forks under the control of an operator are propelled on a track by an electric motor to the right of the furnace where the liners are deposited on a conveyor, cooling as they move along. To avoid sagging which often results in the furnace as the metal becomes red hot, attendants with specially-designed brass covered mallets gently tap the sides of the liners as they cool to restore their shape. After complete cooling any imperfections which might mar the surface are stoned out.

The second porcelain coat is sprayed on the same as lacquer, after which the liner goes into a second drying oven for a few minutes and then into a second glazing oven where a temperature of 1500 degrees Fahr. is maintained. A second fork ma-

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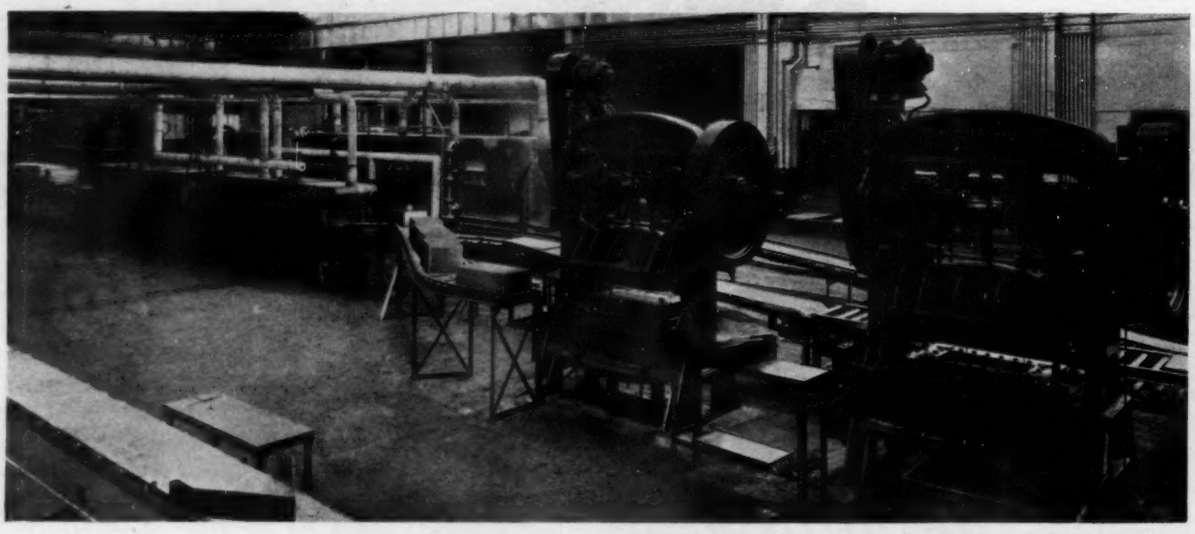
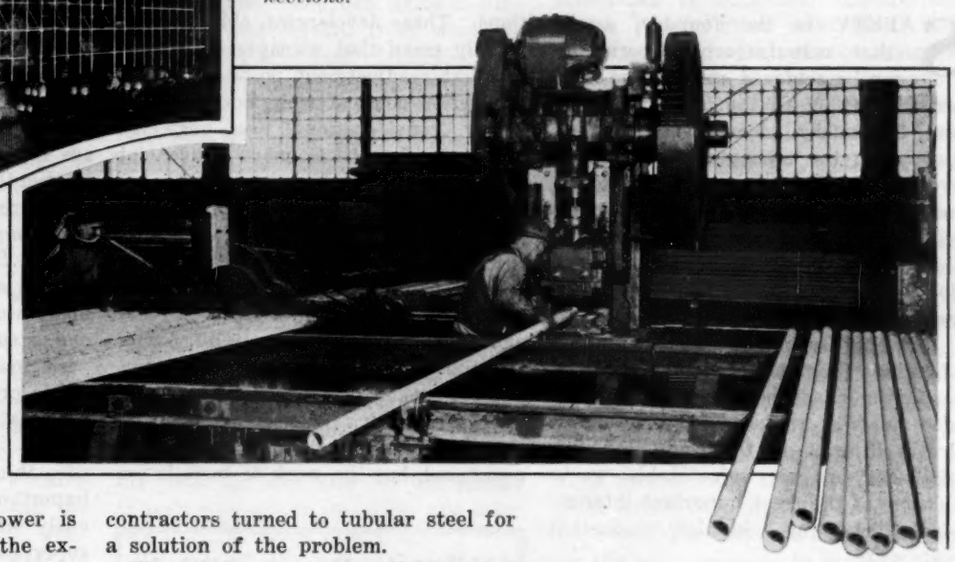


After inner doors are shaped and holes punched they are taken by conveyor to washing machine at left. Presses are at right

Large Uses of Steel in Small Ways

Scaffolding	*146th Article*

STEEL scaffolding used in repairing the oldest church in New York, St. Paul's, at Broadway, Fulton and Vesey streets. Tubes for scaffolding are prepared with special locking connections.



IN DOWNTOWN New York, amid towering skyscrapers, stands the venerable St. Paul's chapel. The oldest in New York, the church was built 135 years ago and was the place of worship of George Washington, when he lived in that city. Time has had its effect, and now the tower is to be replaced in replica and the exterior of the building thoroughly overhauled.

As unique in point of newness almost, as is the chapel in point of age, the scaffolding now being erected is of steel and of a design scarcely more than two years old. While not as famous, many buildings in New York and elsewhere have recently and are now employing metal scaffolding, and the consumption of steel for this type of work is increasing rapidly. It is estimated that more than 15,000 tons of steel is consumed annually in making tubular scaffolding.

Steel scaffolding was not used extensively in this country until early in 1927, following a fire in the wooden scaffolding atop the tower of the 38-story Sherry-Netherland hotel, Fifth avenue, New York city. Beyond all reach of firemen and jeopardizing lives as well as property, this wooden scaffolding blaze was classified in the group of preventable fires. Scaffolding contractors turned to tubular steel for a solution of the problem.

The tubular form of scaffolding had been employed successfully in England several years and it was a question of adapting the British type to meet demands in the United States. The lengths of the tubular parts were extended and much attention was given to the question of connecting the tubes. As many as 20 different types were tested by experts in laboratories at Columbia university before a satisfactory type of joint was found. This joint is comprised of a male and female forging, each forced in the end of the tubes to be joined and then held solidly by a series of depressions. A patented locking connection holds the two member parts in a positive and rigid position.

Tubes Contain Some Copper

The tubes have an outside diameter of 2 inches and come in standard lengths of 6, 8, 10 and 13 feet. They have a copper content of approximately 1 per cent, and are galvanized. The theory in connection with the use of a small quantity of copper is that it tends to diffuse minor impurities that may be found in the steel.

Standard couplers are used for the right angle connections between horizontal and vertical members, while adjustable couplers are used for other than right angle connections, principally for bracing. These couplers are all galvanized forged steel. Incidentally, this scaffolding recently was erected from the ground to the top of a 25-story building in New York.

Metal scaffolding is both sold and leased. On completion of one job it can be dismantled and used for another. Unlike lumber scaffolding, waste is negligible. It is a permanent type of contracting and industrial equipment.

In addition to the fireproof and safe-

(*Concluded on Page* 268)

Co-operation of Entire Personnel Necessary for Plant Safety

Will for Safety Must Be Exemplified by Workmen, Foremen, Heads of Departments and Owners if Accident Prevention Problem Is To Be Solved

By F. H. Elam

Manager, Casualty Department, American Steel Foundries

SAFETY in the foundry, as in other manufacturing operations, can be achieved only by the combined effort of all the personnel. Desire for safety accomplishment must start with the managing head—whatever may be his title, owner, president, manager, etc. The measure of success will be in direct ratio to the degree that this *will for safety* is projected down through the organization to the youngest apprentice or tag boy.

It would seem that the possession of usual humanitarian instincts by managing heads is not enough. They also must be convinced fully that accidental injuries in the course of employment are an unjustifiable waste and one of the most important intangibles which figures in high production costs.

Should Begin Early

This last realization usually is necessary to cause due consideration to be given to the unpleasant effects of injuries and the worthwhile possibilities of the prevention of injuries.

Prevention of accidents and consequent injuries should begin with the planning and layout of the foundry buildings and yard, installation of equipment, laying out of the various molding floors, paths by which production will travel through the various departments, cleaning and shipping departments, and other operations which will be mentioned later.

Probably the majority of foundry buildings now in use are not ideal with respect to safety under present-day conditions if they ever were, and it is easy in the usual rush of providing new buildings or a new foundry to overlook a number of essential features that would be aids to safe operations. These deficiencies, old and new, usually mean that management makes the best readjustment possible from a production point of view, but too often safety considerations are neglected and put off until a more convenient time. This is a serious mistake because production without safety is poor economics.

Purchase and installation of new equipment always should be given careful and continued study to foresee and prevent injuries, especially during the time the equipment is being installed, broken in, and while the workmen are getting acquainted with its operation. Most new equipment is purchased, but the work of installation frequently is done by the foundry mechanical department. Frequently work is attempted that is practically new to the whole force from the plant engineer down to the laborers. All hands are so interested in the work that they frequently overlook simple but necessary precautions taken by men regularly engaged in work of that character. Excavations are made without proper shoring, building columns are undermined without adequate supports and structural materials are hoisted with inadequate lifting devices. The whole procedure is a series of gambles with fate; with lives and limbs for pawns. At such a time the manager, who thinks there are other and more important duties than being continuously on the job, and acting as safety supervisor, is likely to experience a sad awakening.

Needs Careful Watching

When a new piece of equipment, apparently fully guarded, is ready for operation, supervisors who are watching its performances in production should be especially watchful to see that it is operated safely. Workmen may want to remove and lay guards aside giving as excuses that adjustments have to be made and replacing guards takes too long. Guards furnished with the equipment may not work properly in the new service or location.

With new molding units care must be exercised to see that dangerous situations do not develop in serving the unit with sand, facing, flasks, etc., and in routing finished molds away from the units to the pouring floor. Workmen trying to get production in spite of imperfection in the service may use too much haste, or may try

Who Is Responsible?

MANAGEMENT must assume responsibility for safety in the industrial establishment. The employe has nothing to say regarding the design of buildings, the layout of machinery and other types of equipment, and the methods of operation. Unless the problem of safety for the worker is given the proper attention, accident costs may place the establishment in a precarious position. This article, which is from a paper presented at the Chicago meeting of the American Foundrymen's association, discusses a few of the considerations essential to success in any safety movement. The author is manager of the casualty department, American Steel Foundries, Chicago.

to use too much physical force and get injured.

Dangerous possibilities inherent in a new piece of equipment or in its location usually are not all discovered at once. These possibilities for injury are not anticipated by a close study and thus prevented, but are allowed to become known through the medium of tragic injuries to the workmen.

The fact that injuries are avoided by dexterity or luck is a bad situation and should not be tolerated by management. That this situation exists is borne out by the study made by the Travelers Insurance Co., Hartford, Conn., as set forth in the *Travelers Standard*, January, 1929. From an analysis of 50,000 injuries it is shown that for each major injury, there are 29 minor injuries and not less than 300 accidents that do not cause any injury, but which have all the inherent potentialities that the one accident had that caused the one major injury.

Workmen's Attitudes Costly

In a less enlightened day, workmen facing this unknown 1-29-300 hazard sometimes developed considerable pride in their supposed skill in escaping the dangers of their particular craft or calling, feeling that such escape entitled them to be considered master workmen. As a matter of fact, it was not always the best workman who escaped.

Consider what this mode of thinking has cost. First, the major injury with its suffering, loss of earning power, and loss of production. Then the tremendous loss of production occasioned by the other fellows working with one eye on production and the other eye on the *Jack be nimble, Jack be quick* proposition, if they were to escape injury.

The foundry with operations or processes that require men to constantly flirt with danger in the course of their employment had better correct the situation before casualty compensation costs wreck the financial structure.

One thing that will do more than any other to reduce accidents with the least expenditure of money is to clean up the shop, then keep it clean. This has been proven so often that it cannot be questioned successfully.

A clean shop means every department clean. If you are short of room, clean things up a bit cleaner, then at least you have some of the room needed plus greater ease in working, and at the same time you will reduce accidents.

Practically every foundry today is operating under some state compensation law, and that means the payment of compensation for injuries arising out of and in the course of employment. Frequently, it also means payment for physical conditions, such as hernia, lame back, etc., that did not arise, neither were they received in the course of employment.

Compensation Laws

What a relief and satisfaction it would be if all injury cases were clean cut disabilities that came under the specific schedules of the compensation act, with known or readily calculated amounts of compensation so that we could say authoritatively to the injured workman, you will be paid so much and no more. Contrast this with many present cases, coming under the various indefinite classes that may require that compensation be paid for years and, in some instances, for the life of the injured. All of these last type of cases invite the potentially dishonest workmen to see just how long they can extract compensation and refrain from work.

Comparatively few foundries are large enough to warrant carrying their own casualty insurance risk. Casualty insurance is bought from either a state fund, a mutual company, or a regular casualty insurance company. The premium paid usually reflects the accident experience of the insured with adjustment of premium rates from time to time as a result of that experience. Insurance companies offer their clients valuable services through their inspection departments, looking to the elimination of hazards, and the reduction of accidents in the foundry. However, a tendency exists to pay the premium and then let the matter of trying to reduce accidents and rates rest until it again falls due.

To get all the safety benefits the employer should keep a close tally of the compensation, medical and hospital payments made by the insurance company to his injured employes, first, to know that the payments are prompt, second, to know that they are fully as liberal as the law requires, and, third, to apportion the payments to departments where accidents occur.

Show Department Heads

As the payments are made, the foreman of the department and his assistants are reminded continually of at least two unpleasant features of an injury: An accident may occur in only a second of time, but the results to the injured and to the employer may extend over a life time.

Under usual conditions payment of an insurance premium every 6 to 12 months fails to impress anyone except the treasurer. However, when it is known what failure to be safe is costing by departments, and that the burden is accumulative and growing, and when it also is noted what the percentages are over and above compensation and medical payments that the insurance company finds necessary to provide to carry on, then the facts become impressive, and should be a spur to accident prevention.

The actual out-of-pocket cost of injuries does not complete the story. The reduced production of workmen when partially disabled, the cost of replacing those totally disabled, the cost of stoppage of operations by a large number of workmen when a serious injury occurs, should be a further incentive.

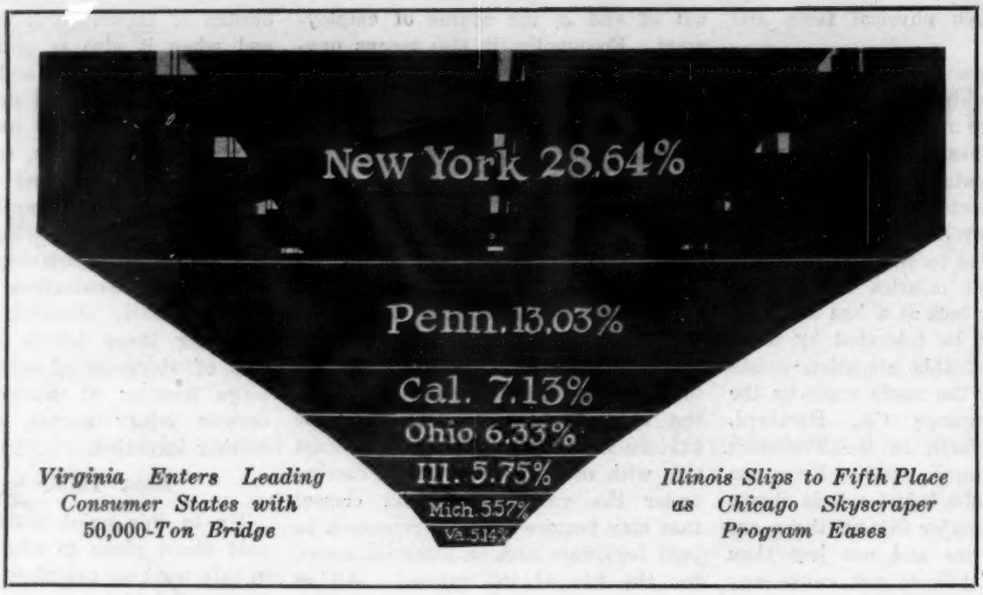
Must Think Safety

Up to this point nothing has been said about plans to educate workmen in safe working practices and thinking. We have laid too much stress on the part that the workman has in the prevention of accidents. Before the phrase *Safety First* was coined and the staggering job of obtaining it was unloaded on the safety inspector, who had the job of accident prevention? What did the laws of the land say about it? In plain language, they said that the master must provide a safe place for the servant to work.

This law also applied to the master's agent, that is any person to whom the master had delegated his authority to oversee and direct his workmen, and whom the workmen were in duty bound to obey; superintendents and foremen of all grades in degrees.

All foremen or supervisors have not failed in this respect, but in a large measure the tendency has been to let supervisors step out from under this duty. The concerns that are making the most progress in accident prevention are the ones that are holding all grades of supervisors to a strict accountability. And why not? Do the workmen have anything to say about planning the buildings, designing the equipment, laying out the floors, routing the material through the various departments, etc., etc.? They do not. Management does, and management must be held accountable for accident prevention in all matters relative to the foregoing.

Regarding the training of workmen in accident prevention, the problem resolves itself down to the simple proposition of a proper exercise of authority and an enlightened leadership. American workmen, native or foreign born, willingly recognize authority and the need of wholesome discipline, and where these things are combined with leadership, workmen are easy to instruct in all things pertaining to their work, including safety and its observance.



First Half Structural Steel Awards Reflect Expansion of Industry

Industrial Construction Almost Half of Tonnage—Subway Work Enables Metropolitan New York To Maintain Market Dominance

By Robert T. Mason

Associate Editor, Iron Trade Review

AUGMENTED by almost 90,000 tons of subway work, metropolitan New York retained its dominance of the fabricated structural steel market in the first half of 1929. A slight decline in the consumption of the three leading eastern states, New York, Pennsylvania and New Jersey was revealed in the ninth semiannual survey by IRON TRADE REVIEW of fabricated structural steel distribution. These data are compiled from the tabulation of structural steel awards published weekly in IRON TRADE REVIEW and are revised to eliminate duplications and alterations in tonnages.

Those three states took 45.41 per cent of the total reported in the first half of 1929. This is a slight drop from 47.60 per cent in the last half of 1928 but is a considerable gain over its corresponding period of last year at 38.47 per cent.

Pennsylvania passed Ohio and Illinois in the current analysis and ranks second to New York with 13.03 per cent of the total reported.

Following is a comparison of the leading states and their proportionate share of consumption:

Per cent of Total Awards

State	Jan.-June 1929	July-Dec. 1928	Jan.-June 1928	Jan.-June 1927
New York	28.64	37.54	24.03	40.88
Pennsylvania	13.03	6.45	10.89	8.10
California	7.13	3.44	5.07	6.56
Ohio	6.33	7.06	9.12	2.92
Illinois	5.75	9.92	14.82	8.01
Michigan	5.57	3.86	1.97	4.71
Virginia	5.14	**	**	**
New Jersey	3.74	3.61	3.55	6.67
District of Columbia	2.61	**	**	**
Wisconsin	2.03	1.57	1.44	**
Maryland	1.68	1.74	1.49	**
Indiana	1.60	2.60	1.22	1.40
Unlocated railroad work	1.52	3.48	3.54	3.62
Massachusetts	1.49	1.47	3.16	1.34
Alabama	1.27	**	**	**
Missouri	1.13	3.84	1.62	1.87
Washington	1.03	1.86	1.47	**
All other states	10.31	11.56	16.61	13.92
	100.00	100.00	100.00	100.00

**Less than 1 per cent.

With a decrease in the number of projects launched in metropolitan New York, the tonnage gained. In the first half of 1929, 148 projects required 299,453 tons, compared with 197 projects and 227,491 tons in the similar half of 1928. In the last half of 1928, however, 157 projects took 342,900 tons. Philadelphia nosed out Chicago as the second largest consuming center for structural steel, taking 70,101 tons for 42 jobs as compared with 51 projects and 46,662 tons for Chicago.

Lack of many heavy tonnages in Chicago was responsible for the change. The increase at Philadelphia was due in part to 11,000-ton Reading Co. warehouse and a 14,400-ton department store.

Further comparisons of consumption by large cities follow:

January-June

	No. of Projects 1929	1928	Tonnage 1929	1928
New York*	148	197	299,453	227,491
Philadelphia	42	73	70,101	43,451
Chicago	51	53	46,662	125,110
San Francisco	30	46	38,631	22,701
Cleveland	37	23	25,846	65,346
Pittsburgh	16	38	24,090	28,515
Los Angeles	26	23	22,322	9,461
Detroit	38	19	20,874	11,977
St. Louis	8	**	11,335	**
Boston	21	20	9,220	25,320

*Including Long Island but not New Jersey suburbs.
**Not listed separately in 1928.

Variation in demand in different states was traceable in most instances to well defined expansion. As might be

expected, the large number of projects placed in the Detroit district were largely for automotive work. Consequently most of the building reported was of industrial nature. In California the building of western plants by tire and rubber companies accounted for considerable of the tonnage.

In the following table the nmber of projects and tons required by individual states are listed for the first six months of 1929 and 1928:

State	No. of Projects January-June 1929	No. of Projects January-June 1928	Tons January-June 1929	Tons January-June 1928
Alabama	12	11	14,150	5,480
Arizona	4	1	2,964	260
Arkansas	1	2	860	4,000
California	97	111	79,156	51,344
Colorado	1	2	1,300	3,700
Connecticut	15	10	7,365	5,780
Delaware	4	3	2,930	1,350
Dist. of Columbia	7	6	28,923	3,895
Florida	6	2	2,445	520
Georgia	6	3	8,145	7,100
Idaho	....	2	.....	600
Illinois	77	86	63,834	149,903
Indiana	20	28	17,828	12,347
Iowa	3	3	4,150	2,330
Kansas	2	....	732	.....
Kentucky	6	2	5,525	18,300
Louisiana	6	4	2,144	1,950
Maine	5	3	1,800	3,115
Maryland	11	15	18,644	15,072
Massachusetts	49	45	16,604	32,036
Michigan	71	42	61,823	19,947
Minnesota	7	9	10,715	8,606
Mississippi	4	2	650	16,350
Missouri	9	19	12,535	16,470
Montana	1	1	275	233
Nebraska	5	3	2,681	2,234
Nevada	1	2	500	1,000
New Hampshire	2	6	200	2,571
New Jersey	42	54	41,529	35,973
New Mexico	1	1	115	350
New York	200	239	327,757	252,990
North Carolina	7	12	2,697	10,661
North Dakota	....	....	.....	.....
Ohio	86	86	70,268	92,323
Oklahoma	5	....	2,530	.....
Oregon	3	6	555	1,560
Pennsylvania	115	177	144,556	110,175
Rhode Island	4	4	940	6,600
South Carolina	8	5	1,164	13,933
South Dakota	....	1	.....	.....
Tennessee	7	4	8,180	1,255
Texas	14	10	9,479	7,860
Utah	2	1	950	600
Vermont	12	13	3,438	5,470
Virginia	21	10	57,098	8,956
Washington	27	25	11,490	14,877
West Virginia	12	15	8,800	8,955
Wisconsin	22	20	22,585	14,570
Wyoming	1	1	1,200	150
Unlocated R.R. Work	28	41	16,961	35,810
Miscellaneous	9	4	7,230	1,645
Totals	1,053	1,152	1,109,300	1,011,206

DISTRIBUTION ACCORDING TO TYPES OF USE BY STATES

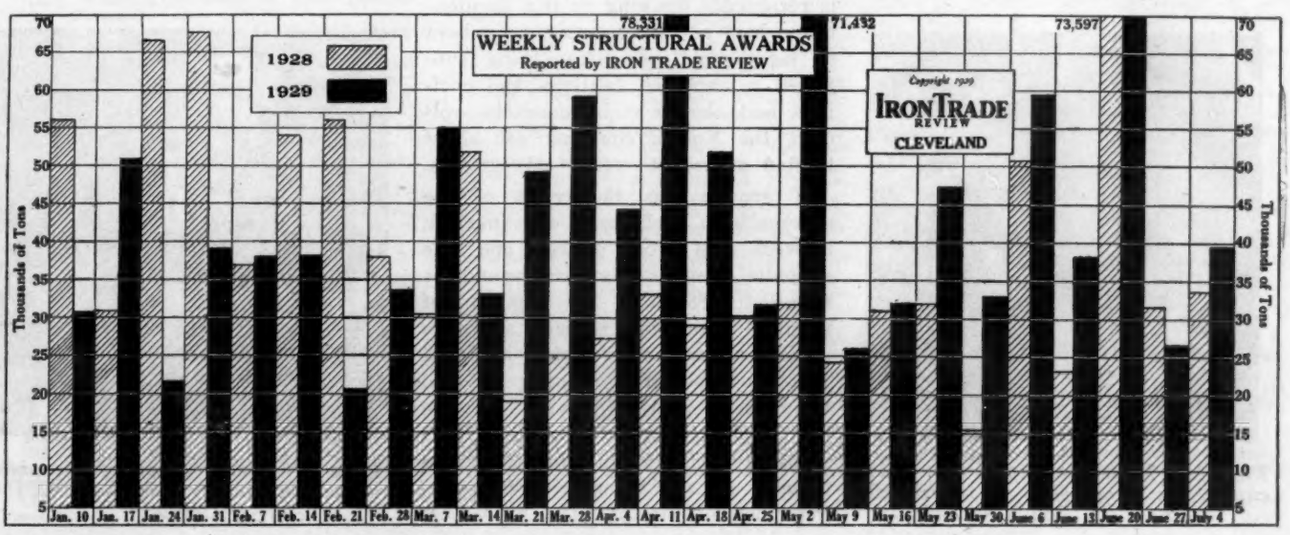
State	Commercial No. Proj.	Commercial Tons	Residential No. Proj.	Residential Tons	Industrial No. Proj.	Industrial Tons	Bridges No. Proj.	Bridges Tons	Public Buildings No. Proj.	Public Buildings Tons
Alabama	....	.....	....	.....	9	9,250	1	2,500	2	2,400
Arizona	1	850	....	.....	1	1,500	2	614	....	.....
Arkansas	....	.....	....	.....	....	.....	1	860	....	.....
California	19	22,017	20	5,505	33	19,515	11	24,849	12	5,420
Colorado	....	.....	....	.....	....	.....	....	.....	1	1,300
Connecticut	2	950	....	.....	4	2,690	3	1,000	6	2,725
Delaware	1	1,850	1	400	....	.....	1	380	1	300
Dist of Columbia	2	2,700	....	.....	1	265	....	.....	4	25,958
Florida	2	665	....	.....	3	1,280	1	500	....	.....
Georgia	2	3,245	....	.....	3	4,000	1	900	....	.....
Illinois	16	18,905	3	2,150	33	22,113	9	11,080	15	9,486
Indiana	1	700	....	.....	15	14,553	2	2,145	2	430
Iowa	....	.....	....	.....	1	900	2	3,250	....	.....
Kansas	1	382	....	.....	1	350	....	.....	....	.....
Kentucky	1	200	....	.....	4	4,925	1	400	....	.....
Louisiana	....	.....	....	.....	2	225	1	100	3	1,819
Maine	....	.....	....	.....	1	100	3	1,600	1	100
Maryland	....	.....	....	.....	5	16,300	6	2,344	....	.....
Massachusetts	5	1,383	5	2,400	19	4,250	7	3,581	13	4,990
Michigan	21	7,545	....	.....	41	50,351	5	2,115	4	1,812
Minnesota	2	6,365	....	.....	....	.....	4	4,100	1	250
Mississippi	1	350	....	.....	1	100	2	200	....	.....
Missouri	5	8,770	1	2,500	2	1,115	1	150	....	.....
Montana	....	.....	....	.....	1	275	....	.....	....	.....
Nebraska	3	2,120	....	.....	1	111	1	450	....	.....
Nevada	....	.....	....	.....	1	500	....	.....	....	.....
New Hampshire	1	100	....	.....	....	.....	1	100	....	.....
New Jersey	4	5,495	2	950	14	11,105	16	12,044	6	11,935
New Mexico	....	.....	1	115	....	.....	....	.....	....	.....
New York	55	120,824	31	39,870	42	20,038	31	115,105	41	31,920
North Carolina	....	.....	1	102	3	1,900	....	.....	3	695
Ohio	12	18,134	....	.....	43	33,638	20	14,896	11	3,600
Oklahoma	....	.....	....	.....	4	1,930	1	600	....	.....
Oregon	1	200	....	.....	....	.....	2	355	....	.....
Pennsylvania	16	43,535	2	900	52	47,576	20	31,725	25	20,820
Rhode Island	1	120	....	.....	....	.....	1	200	2	620
South Carolina	....	.....	....	.....	3	1,164	....	.....	....	.....
Tennessee	....	.....	....	.....	6	6,880	1	1,300	....	.....
Texas	2	5,500	1	450	6	1,754	3	1,225	2	550
Utah	....	.....	....	.....	2	950	....	.....	....	.....
Vermont	....	.....	....	.....	2	1,050	10	2,388	....	.....
Virginia	5	3,320	....	.....	7	1,578	6	51,650	3	550
Washington	5	775	1	175	10	6,220	5	2,750	6	1,570
West Virginia	....	.....	....	.....	8	6,220	3	2,440	1	140
Wisconsin	3	3,350	1	125	12	5,235	2	400	4	13,475
Wyoming	....	.....	....	.....	....	.....	1	1,200	....	.....
Unlocated R.R. Works	....	.....	....	.....	1	500	27	16,461	....	.....
Miscellaneous	....	.....	....	.....	6	2,900	....	.....	....	.....
Total	190	280,330	70	55,642	403	305,306	215	317,957	169	142,865

Subway work contributed 86,190 tons to New York's total. But the most frequent buyer was the Van Sweringen interests of Cleveland, placing 16 separate contracts for work identified with the Cleveland Union Terminals, taking 17,909 tons.

Aviation figured heavily in first half awards, and reflected the increasing activity in that industry. Twenty-nine contracts totaling 14,606 tons were placed. The largest tonnages were for airplane plants. Curtiss-Caproni placed 1000 tons for a plant at Baltimore. Glenn L. Martin awarded 2000 tons for a plant near the same city. Ford interests placed 965 tons for extensions at Detroit, and American Aeronautical Corp. bought 1400 tons for a plant at Long Island City, N. Y. Most of the other contracts were for 100 to 500 tons for hangars.

Thirty-five projects in Canada and foreign countries were reported by IRON TRADE REVIEW in the first half.

Soviet Russia bought 8000 tons for a tractor plant and Rio de Janeiro, Brazil, 2000 tons for car shops.



Diesel Engine Builders Form Association

As a result of the steady increase in the use of diesel engines in all types of industrial service and the realization of the need for closer contact between manufacturers and a study of the problems of the user, leading builders of diesel engines have organized the Diesel Engine Manufacturers' association with headquarters at 30 Church street, New York. The association has as its primary object the advancement of diesel power in America and a broad program of cooperation with the users of this type of power. The following manufacturers are founder members of the association: New London Ship & Engine Co.; Electric Boat Co.; Worthington Pump & Machinery Corp.; Fulton Iron Works Co.; Ingersoll-Rand Co.; Fairbanks, Morse & Co.; Nordberg Mfg. Co.; I. P. Morris & DeLaVergne Inc.; Winton Engine Co.; Cooper-Bessemer Corp.; McIntosh & Seymour Corp.; Busch-Sulzer Bros. Diesel Engine Co.; and Hooven, Owens, Rentschler Co.

President of the association is Henry R. Sutphen, president, Electric Boat Co., New York; vice president, E. T. Fishwick, vice president, Worthington Pump & Machinery Corp., New York; secretary and treasurer, Harlan A. Pratt, manager, oil and gas department, Ingersoll-Rand Co., New York. M. J. Reed is employed by the association as research engineer.

Slag Concrete Studied

Symposium No. 18, one of a collection pertaining to the characteristics and uses of blast furnace slag, has been prepared and published by the National Slag association, 937 Leader building, Cleveland. The title is "Compressive Strength of Slag Concrete." By a comparison of many compressive tests on different varieties of slag concrete it is concluded that properly made slag concrete with natural sand as fine aggregate will equal if not surpass other comparable concretes in compressive strength, and that a concrete with well-graded air-cooled slag as fine aggregate also will show satisfactory strengths, although probably not as high.

Special Iron for Ingot Molds Is Developed

TOOL, alloy and other high-grade steel producers demand high-quality ingot molds having a particularly smooth surface and careful workmanship so that ingot sizes and contours for special steels may be obtained successfully. In the spring of 1923 the Vulcan Mold & Iron Co., Latrobe, Pa., was organized to manufacture molds as a specialty.

The latest improvement by this company has been the perfection of a new metal for ingot molds, which is marketed under the trade name of Vulc-Iron. This iron was developed after several years of research and experiment to resist the failure of ingot molds through heat checking and cracking. A study to determine the causes of heat checking disclosed the following data:

Cast iron is essentially a metal having a steel matrix through which graphite flakes mechanically are sprinkled. During the heating and cooling, which an ingot mold undergoes in service, the cast iron expands and contracts according to heat laws. As the coefficient of expansion of the steel matrix is higher than that of the graphite, the steel expands faster and actually leaves a hole or cavity around each graphite flake Near the surface of the mold these cavities are similar to pores in the human skin and will permit oxygen and other gases to penetrate. Oxidation takes place at or near the surface of the mold and while there are conflicting theories as to what is oxidized, photomicrographs clearly show that oxides surround the graphite flakes. These oxides, having more volume than the elements oxidized, partially fill the cavity formed during the expansion, and when the ingot mold cools and contraction of the metal takes place it cannot shrink back to the volume it started with and a permanent growth of the iron is recorded. Working on this assumption which actual experiment on bars of ingot mold iron after being subjected to repeated heatings and coolings had shown to increase the volume, the Vulcan company set about to find an iron to resist this growth.

If growth was the result of the difference in coefficients of expansion between the iron matrix and the graphite then this growth would be retarded providing the number of graphite flakes were reduced, and were made smaller and rounded in form. Also the penetration of oxygen would be reduced if the distance between the graphite flakes was lessened thus stopping an open path for the gases to use. As shown on the accompanying photomicrographs the differences between the structure and amount of the graphite in regular iron and in Vulc-Iron is apparent. Failure of some large ingot molds by cracking or breaking is due to sudden expansion of the metal when the steel is poured, or insufficient strength to withstand this shock.

A considerable savings in per piece value of molds can be effected by using a metal having sufficient strength to withstand the sudden expansion which takes place during the pouring of the ingot. High percentages of sulphur in cast iron increase its tendency to be brittle, and the metal cracks both at high and low temperatures. While the tensile strength, transverse strength, and deflection of this iron is high, it was felt that by lowering the sulphur content the physical properties would be improved. Vulc-Iron is, therefore, treated to reduce the sulphur content and will average about 0.035 per cent sulphur.

Fig. 1—Photomicrograph of regular cupola cast iron, with large graphite flakes. X 100. Etched

Fig. 2—Photomicrograph of desuphurized special ingot mold iron. X 100. Etched

Announce Technical Papers for

STEEL TREATERS'

Convention at Cleveland

DISCUSSION and investigation of nitrided steels and the nitriding process is a popular subject on this year's list of technical papers for presentation at the annual meeting of the American Society for Steel Treating, to be held in Cleveland, Sept. 9-13. The entire list of papers covers practically every phase of research in connection with iron and steel and includes tentatively 32 manuscripts.

In conjunction with meetings of the steel treaters will be held sessions of the American Welding society, with headquarters at Hotel Statler; the institute of metals division of the American Institute of Mining and Metallurgical Engineers as well as the iron and steel division of this society, with headquarters at Hotel Cleveland; and the iron and steel division of the American Society of Mechanical Engineers, with headquarters at the Hollenden hotel. Headquarters for the American Society for Steel Treating will be maintained at Hotel Cleveland.

The entire proceedings have been designated as the National Metal congress, the fourth of its kind, held annually. The National Metal exposition will be a prominent feature of the week, featuring dispays of manufacturers in the metals industries in the Public auditorium, Cleveland.

The list of papers announced for presentation at the technical sessions of the steel treaters is as follows:

Terminal Tower building, Cleveland

"Graphitization of Prequenched Cast Iron," by H. A. Schwartz, H. H. Johnson and C. H. Jung, National Malleable & Steel Castings Co., Cleveland.

"Locomotive Forgings," by L. H. Fry, Standard Steel Works, Burnham, Pa.

"On the Distribution of Hardness Produced by Cold Working," by W. P. Sykes, Cleveland Wire Works, General Electric Co., Cleveland, and A. C. Ellsworth, Thompson Products Co., Cleveland.

"Production of Electric Steel for Castings," by George Batty, Steel Castings Development bureau, Philadelphia.

"Methods of Tests for Determining Machinability of Metals in General, with Results," by O. W. Boston, University of Michigan, Ann Arbor, Mich.

"Slags Produced in Steelmaking," by G. A. Dornin, Gathmann Engineering Co., Baltimore.

"Radiograph as a Tool in the Metal Industry," by William L. Fink and R. S. Archer, research department, Aluminum Co. of America, Cleveland.

"Hot Aqueous Solutions for the Quenching of Steel," by H. J. French, research laboratories, International Nickel Co., Bayonne, N. J., and T. E. Hamill, bureau of standards, Washington.

"Dendritic Steel," by H. G. Keshian, Chase Metal Works, Waterbury, Conn.

"Brittle Range in 18-8 Chrome-Nickel Iron," by H. H. Lester, Watertown Arsenal, Watertown, Mass.

"Development of High Test Cast Irons," by E. J. Lowry, consulting metallurgist, 613 Fisher building, Detroit.

"Melting Practice for Three Types of Electric Steel," by H. P. Rassbach, Midvale Co., Nicetown, Philadelphia.

"Nondestructive Testing," by Elmer A. Sperry, Sperry Development Co., Brooklyn, N. Y.

"Conditions Necessary for Blistering of Metal During Processing," by Anson Hayes, American Rolling Mill Co., Middletown, O.

"Improvement of Refractory Lining of Heat Treating Furnaces for High Temperature Annealing of Steel Castings," by W. J. Merten, Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa.

"Dilation of Steel During Quenching," by G. M. Eaton, Molybdenum Corp. of America, Pittsburgh.

"Austenite and Its Decomposition," by Albert Sauveur, Gordon McKay professor of metallurgy and metallography, Harvard university, Cambridge, Mass.

"A Study of the Iron-Chromium-Carbon Constitutional Diagram," by V. N. Krivobok, Carnegie Institute of Technology, Pittsburgh, and M. A. Grossmann, Central Alloy Steel Corp., Canton, O.

"Some Notes on the Behavior of Carbon Tool Steel in Quenching," by G. V. Luerssen, Carpenter Steel Co., Reading, Pa.

"Overheating of Steel for Forging," by W. E. Jominy, investigator, University of Michigan, Ann Arbor, Mich.

"A Study of the Critical Ranges in Pure Iron-Carbon Alloys," by R. H. Harrington and William P. Wood, University of Michigan, Ann Arbor, Mich.

"Inherent Hardenability Characteristics of Tool Steel," by B. F. Shepherd, Ingersoll-Rand Co., Phillipsburg, N. J.

"Preparation of Microsections of Tungsten Carbide," by S. L. Hoyt, General Electric Co., Schenectady, N. Y.

"Crystal Structure of an Iron Phosphide," by James B. Friauf, bureau of metallurgical research, Carnegie Institute of Technology, Pittsburgh.

"The White Layer in Gun Tubes," by H. H. Lester, Watertown Arsenal, Watertown, Mass.

"A Study of the Nitriding Process," by V. O. Homerberg and J. P. Walsted, Massachussetts Institute of Technology, Cambridge Mass.

"The Economical Refuse of Solid Carburizing Materials," by H. B. Knowlton, International Harvester Co., Fort Wayne, Ind.

"A Few Fundamentals of the Nitriding Process," by H. W. McQuaid and W. J. Ketcham, Timken Detroit Axle Co., Detroit.

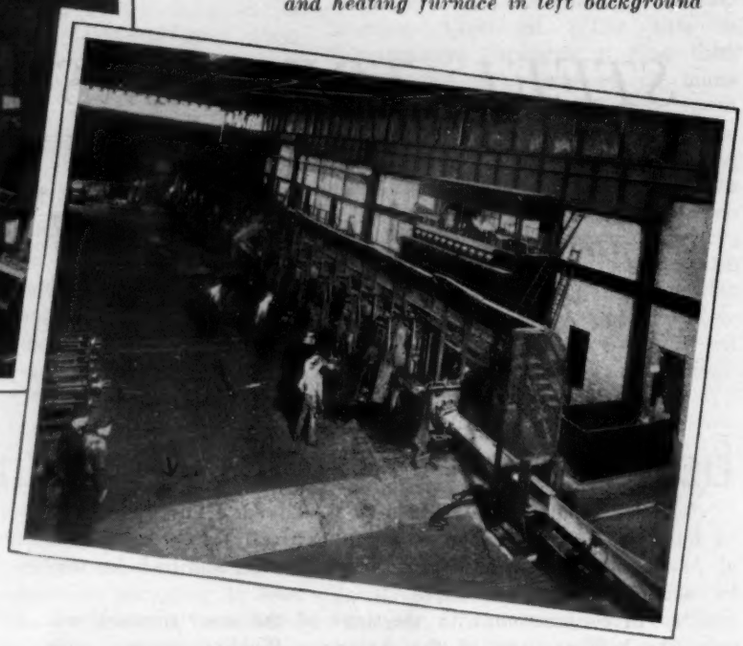
"Researches of Nitriding Steels," by Dr. O. E. Harder, J. T. Gow and L. A. Willey, University of Minnesota, Minneapolis.

"Short Time Nitriding of Steels in Molten Cyanides," by A. B. Kinzel and J. J. Egan, Union Carbide and Carbon Research Laboratories, Long Island City, N. Y.

"Observations Upon the Iron-Nitrogen System," by Samuel Epstein, Illinois Steel Co., South Chicago, Ill.

"Investigations in Nitriding," by Robert Sergeson, Central Alloy Steel Corp., Canton, O.

Control platform showing controllers, meters and speed indicators



Finishing train in center, and roughing train and heating furnace in left background

New Continuous Strip Mill Delivers Stock at 2400 Feet a Minute

Rolling Instructions Are Received in Pulpit Through Loud Speaker—Finishing Stands Driven Individually—Rolling, Edging Mills Synchronized

DEVELOPMENT in strip steel rolling practice in the past decade has advanced the industry at a rapid pace, and inception of new mills has given added impetus to production of strip steel, which aggregated 2,161,988 tons in 1928. Among pioneers in this branch of the steel industry is the Sharon Steel Hoop Co., Sharon, Pa., and to this institution is credited the introduction of many new methods, devices and much equipment out of which has emanated improvement of quality as well as saving in cost of production.

To meet the growing demand for strip steel, plans were formulated by executives of this organization in February, 1928, to install a new continuous hot strip mill. Requirements of the new installation went beyond that which previously had been accomplished in the rolling of long lengths of strip steel at high delivery speeds, and in the range of sizes and gages produced in a single mill of this type.

Specifications drawn up called for a mill to roll strip in sizes 2½ x 0.028-inch; 6 x 0.035-inch; 8 x 0.049-inch; 10 x 0.065-inch, at speeds up to 2400 feet per minute, and in coils from 150 to 2000 pounds. All strip sizes were to be produced from 30-foot billets.

Operation Started in April

On April 1, 1929, the unit was completed and placed in operation at the Sharon plant. Mill and handling equipment are located in two parallel buildings about 500 feet long, which extend between the billet storage transcept and the hot warehouse loading transcept buildings. Billets are delivered to the furnace from a mechanical billet platform by a motor-driven roller table through a pinch roller in the corner of the furnace. The furnace is 32 feet wide and 47 feet long on the hearth, and is completely enclosed on the sides and ends with rolled steel plates. Between the brick walls and the steel plates, insulating material has been placed to conserve the heat. The furnace is equipped with a special metal pipe recuperator stove. A double pusher, electrically driven, is installed for pushing billets through the furnace, and a pushout for discharging the billets. A flat roof is used on this furnace which is fired with producer gas from a new type producer located near it. The producer will gasify 6000 pounds of coal per hour. This furnace has a capacity of 60 tons of 2-inch thick billets or slabs per hour of operation.

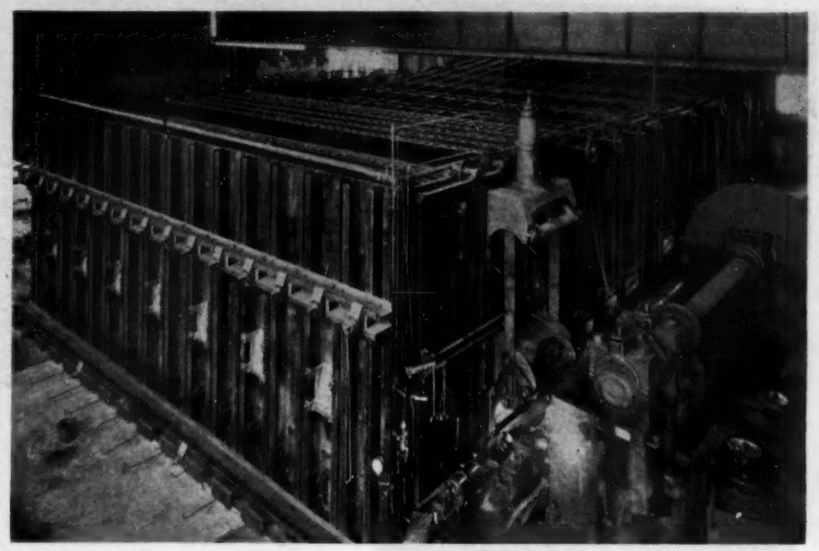
An up-and-down shear was placed between the furnace and the roughing mill. This shear is fed by a set of motor-driven pinch rolls when it is

necessary to cut the billets into short lengths; otherwise, the billets are pushed from the furnace directly into the roughing mill.

The roughing mill consists of five stands of 18-inch rolls which are driven by a variable speed direct-current motor through reducing and spiral bevel gears. The bevel gears are enclosed in oil-tight welded steel bases and covers. In the roughing group, four edging mills with 16-inch and 12-inch rolls are installed. All edging mills are driven by separate motors. Hydraulic water sprays of 1000 pounds pressure are employed in the roughing mill for the removal of all furnace scale and to insure a good surface. After the roughing mill a steam flying shear is installed for cropping the front ends of the strip.

The finishing mill consists of six stands of 14-inch rolls. Each of these is driven by an individual variable-speed direct-current motor.

Strip is delivered from the last finishing mill through a twisted trough to either of two vibrators, which in turn, deliver the strip on edge in serpentine form on slowly moving conveyors. The front end of the piece then is placed in motor-driven pinch rolls that feed it into a shear for cropping, and then into the reel for coiling. The cropping shear also may be used for dividing the strip so that light weight coils may be made without reshearing. When the coil is completed, a motor-driven pulloff places the coils on a conveyor which carries the coils into the loading building where they are assembled on trucks. Two complete sets of vibrators, conveyors, shears, coilers, as well as delivery conveyors are also employed.



End and discharge side of furnace, showing the pinch rolls and up-and-down cut shear

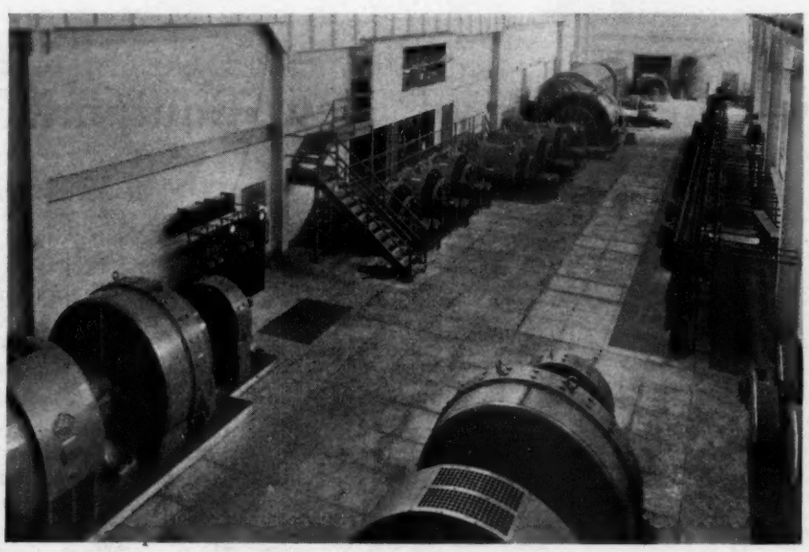
The power for this mill is received at 2300 volts, 60 cycles, 3-phase, and is converted to 600 volts, direct current, in two 4500 kilowatt motor-generator sets with a 250 kilowatt, 250-volt direct-connected exciter on each set. One exciter is used for excitation and control purposes, and the other exciter is used for the auxiliary motors required for the mill.

Has Wider Speed Range

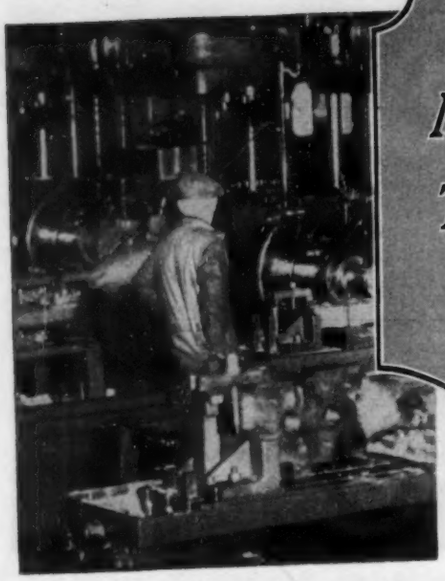
The roughing mill motor, being of wider speed range than customary, a Ward-Leonard control is employed, using one of the direct-current generators for this service. This arrangement is controlled separately so that it does not interfere with the operation of the other motors.

Finishing and edging mill motors are equipped with magnetic control, dynamic braking and emergency reversing. In the operating pulpit devices are mounted so that the operator has complete control of the motors at this point. A master switch is employed for starting, stopping and reversing the rolls, and a spring return master switch for the motor-operated coarse adjustment field rheostat, for each drive. Speed indicators and ammeters also are provided. Operators in the pulpit receive instructions regarding operations and speed changes from a loud speaker mounted in the pulpit, the roller talking into microphone on the operating floor.

All the mill motors are equipped with speed-regulating equipment that holds the speeds of the different motors constant regardless of the load being carried by the different motors. The speed regulators for the edging mill motors are operated in conjunction with the roughing mill motor so that as the speed of the roughing mill is changed the speed of the edging mill motor automatically is changed. This avoids separate adjustment of the edging mill motors every time there is a change of speed required for the roughing mill. The speed of each edging mill, however, can be adjusted separately when required. The vibrator motors also are equipped with speed regulators. The mill was designed and built by the Morgan Construction Co., Worcester, Mass. Sharon Steel Hoop Co.'s construction force erected the buildings, installed foundations, and machinery.



Substation with motor-generator set in foreground, switchboards in right center, finishing mill motors in left center, and roughing mill motor and gear drive in background



New Machine Tools and Shop Equipment

"Without tools man is nothing, with tools he is all."—Carlyle

Machine Tools Lead New Equipment

SUMMARIZING the descriptions of new machinery and shop equipment which appear weekly in IRON TRADE REVIEW it is seen that approximately 300 such descriptions are presented each year, or an average of one new item each working day. This, in only a narrow section of industrial activity and then only a portion of the complete list of new equipment which is introduced to the trade. Perhaps this steady influx of new ideas and new methods of doing old tasks is in a measure an answer to the reason for American prosperity today. Today's tools are tomorrow's junkpile is the modern maxim. A better way to accomplish some old operation always exists and designers and builders are not slow to ferret out the "modern method."

In the first half of 1929 IRON TRADE REVIEW presented 133 descriptions, classified as follows:

Classification of descriptions	Number of descriptions	Per cent of total
Machine tools	26	19.5
Electrical accessories	21	15.8
Grinding, polishing and buffing equipment	20	15.0
Welding equipment	15	11.3
Miscellaneous shop equipment	14	10.5
Cranes, hoists, etc.	13	9.8
Metal cutting and forming machines	10	7.5
Furnaces and furnace equipment	9	6.8
Materials handling machinery	3	2.3
Engines, locomotive and gasoline	2	1.5
Total	133	100.0

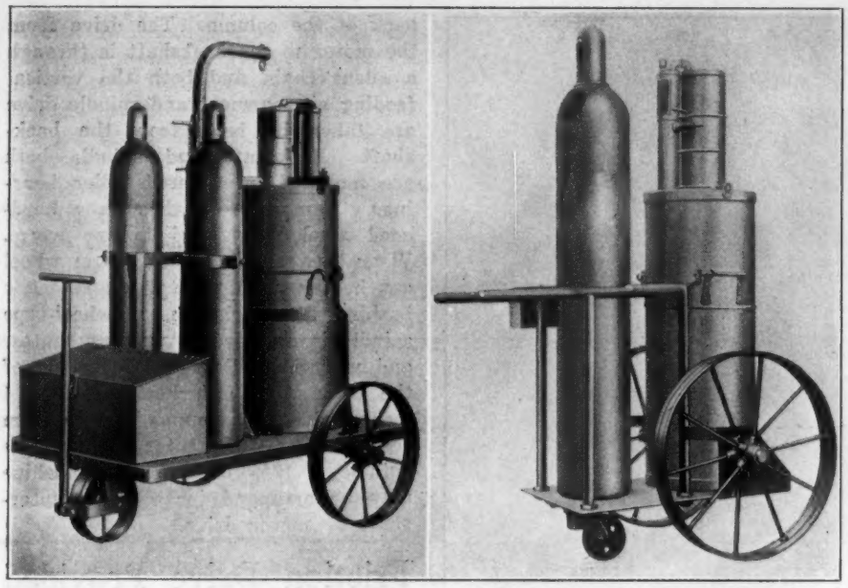
These descriptions represent the products of 104 separate manufacturers, situated in every large industrial district in the United States.

Machine tools head the list in number and percentage of new items and rightfully so since, next to raw materials, they are really the base of all manufacturing. Grinding, polishing and buffing machines and equipment often are classified as machine tools, a fact which in accordance with the preceding reasoning, would explain their high position in the table. For the purposes of this tabulation, however, they were segregated from machine tools proper. Together, ma-

(*Concluded on Page* 267)

Iron Trade Review's Calendar of New Equipment

Item	Comment	Builder	No.	Date Described	Page
Bucket	Manually-loaded dump bucket; welded scoop	Edgar E. Brosius Inc.	143	July 11	86
Alloy	Nonferrous; machinable and highly resistant to acids	Burgess-Parr Co.	144	July 11	86
Switch	Magnetic; throws small motors across the line	General Electric Co.	145	July 11	87
Controllers	Reversing drum controllers for heavy-duty work	Westinghouse Electric & Mfg. Co.	146	July 11	87
Metal polishers	Motor-driven; 7-foot flexible shafts	Stow Mfg. Co.	147	July 11	87
Shape cutter	Six-torch universal shape cutting machine	General Welding & Equipment Co.	148	July 11	87
Chamfering machine	Equipped for chamfering wide variety of gear teeth	City Machine & Tool Works	149	July 18	144
Grinders	Bench and pedestal types; enclosed	Hill-Curtis Co.	150	July 18	145
Gage set	Radius gages; 16, varying from 1/32 to 17/64-inch	Lufkin Rule Co.	151	July 18	145
Drill	Multiple-spindle medium-size machine; hydraulic feed	National Automatic Tool Co.	152	July 18	145
Electrode holder	Clamp-type; holds electrode wire in any position	General Electric Co.	153	July 18	145
Testing machines	Complete line of metal testing units	Losenhausenwerk, Germany	154	July 25	203
Drill	High-speed sensitive type; two speeds	High Speed Hammer Co.	155	July 25	203
Saw	High-speed type for cutting off nonferrous shapes	Hunter Saw & Machine Co.	156	July 25	204
Sand mixer	Moving and fixed blades in circular stationary pan	C. & B. Smith, England	157	July 25	204
Drill	Multiple-spindle type; six spindles on 7½-inch centers	Kent Machine Co.	158	July 25	204
Presses	Toggle presses for punching flanges and webs	Beatty Machine & Mfg. Co.	159	July 25	205
Electrode	For welding mild steel and cast iron repair work	Lincoln Electric Co.	160	Aug. 1	265
Blue-printing machine	Exposes, develops, washes and dries prints continuously	C. F. Pease Co.	161	Aug. 1	265
Trucks	Three-wheel trucks for carrying acetylene generators	Oxweld Acetylene Co.	162	Aug. 1	265
Milling machine	Cam feed to head; suitable for high production	Kent-Owens Machine Co.	163	Aug. 1	266
Tapping machine	Friction-driven, geared and semiautomatic	Rickert-Shafer Co.	164	Aug. 1	266
Woodworking machine	Improvements on former type; portable, increased power	De Walt Products Corp.	165	Aug. 1	266
Water coolers	Electric; control of temperature provided	Frigidaire Corp.	166	Aug. 1	267



No. 162—Two types of three-wheel trucks for acetylene generators and oxygen cylinders

New Welding Electrode Makes Clean Welds

No. 160

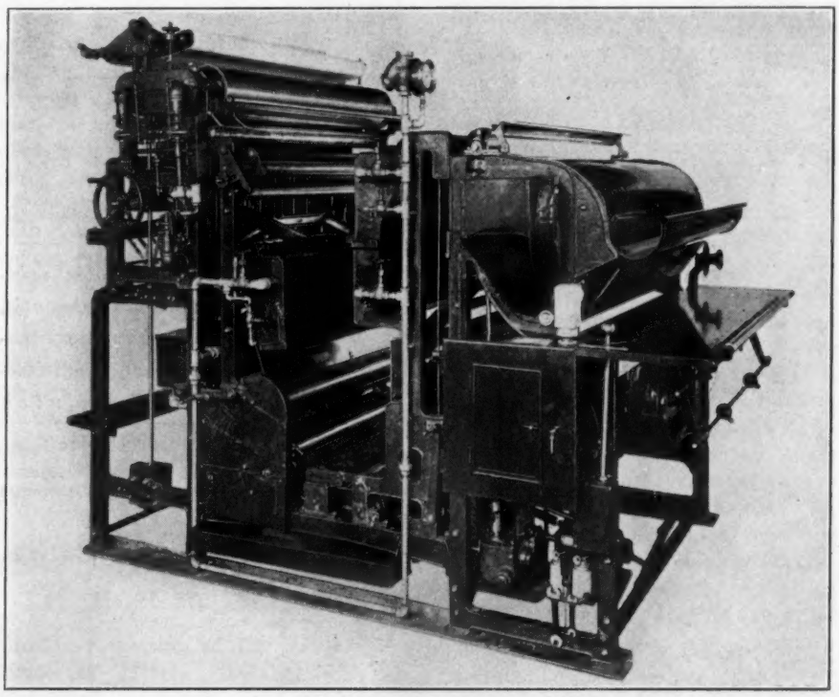
Lincoln Electric Co., Coit road and Kirby avenue, Cleveland, has placed on the market a new welding electrode for the arc welding of mild steel and for cast iron repair work. The electrode is said to produce clean welds with a minimum of slag and oxidation, flow freely and be free from sputtering. The high heat permissible for use with the electrode is claimed to make possible increased welding speed and deep penetration, resulting in a weld which is soft and machinable. Stock lengths are 14 and 24 inches. The rod is packed for shipment in metal containers holding 50 pounds each.

Blue-Printing Equipment Is Continuous Type

No. 161

C. F. Pease Co., 813 North Franklin street, Chicago, recently has placed on the market a new continuous blue-printing machine for the production of blueprints, negative prints, and blue line and brown line prints. Following the usual practice, with this new machine tracings are laid face up on a continuous roll of paper, feeding at the front of the machine, and are carried upward around a semicircular segment of plate glass past a bank of arc lamps. These lamps are mounted individually in horizontal alignment in front of the glass and emit an intense light rich in actinic value. After the exposure has been made the tracings are returned automatically into the tray at the front of the machine while the prints on the continuous roll of paper are carried through the machine and the subsequent operations of washing, potashing and drying. The paper then is rolled up automatically in loose cylinder form at the rear of the machine for cutting and trimming.

The machine is direct gear driven throughout, has a speed range of from 4 inches to 12 feet per minute and is powered with a variable-speed ¼-horsepower motor direct connected to a fully enclosed gear reduction unit running in oil. At the left of the machine in front, as shown in the accompanying illustration, is a special four-point auto-type gear shift providing for two forward speeds, high and low, and also neutral and reverse. The reverse gear is a new departure in blueprinting machine construction and permits the operator to withdraw tracings or run back the leader roll when desired. At the right of the machine and mounted above the feed table is another speed control for regulating the printing speed. Potash and negative solution is applied to the prints by passing them over rolls coated with the solutions. Two chromium plated copper drums and an auxiliary air drying unit are provided to dry the prints. The machine is built in widths of 42 and 54 inches.



No. 161—Blue prints are exposed, developed, washed and dried continuously by this machine

Three-Wheel Trucks for Acetylene Generators

No. 162

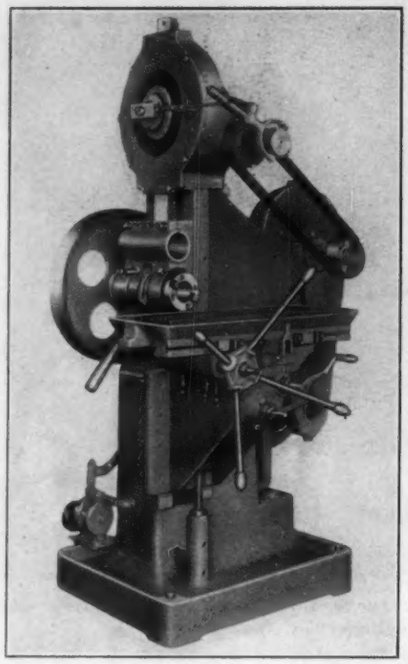
Oxweld Acetylene Co., 30 East Forty-second street, New York, recently has introduced two new types of trucks to accommodate its large and small models of low-pressure acetylene generators. The truck designed to carry the larger generator, shown to the left in the accompanying illustration, is oxyacetylene welded throughout. Two large 24-inch wheels carry the rear part of the truck; a third 12-inch wheel, in the front, is of the caster type and allows the truck to be turned in a radius about equal to its own length. The generator is se-

cured to the steel deck by means of angle iron braces and two long bolts which are inserted in the handles of the generator and are tightened by turnbuckles. The truck is provided with a steel tool box with loop fastenings. This box can be used for wrenches, small tools, or for a welding or cutting outfit. Oxygen cylinders are chained to a steel rack which is fastened to the deck of the truck beside the generator. A crane is provided to be used in charging and emptying the generator. The crane jib is made in three sections which can be telescoped when not in use. The smaller truck, shown to the right in the illustration, will accommodate one cylinder of oxygen in addition to the smaller generator. Two 24-inch rear wheels and a 5-inch caster wheel are provided, operating on roller bearings.

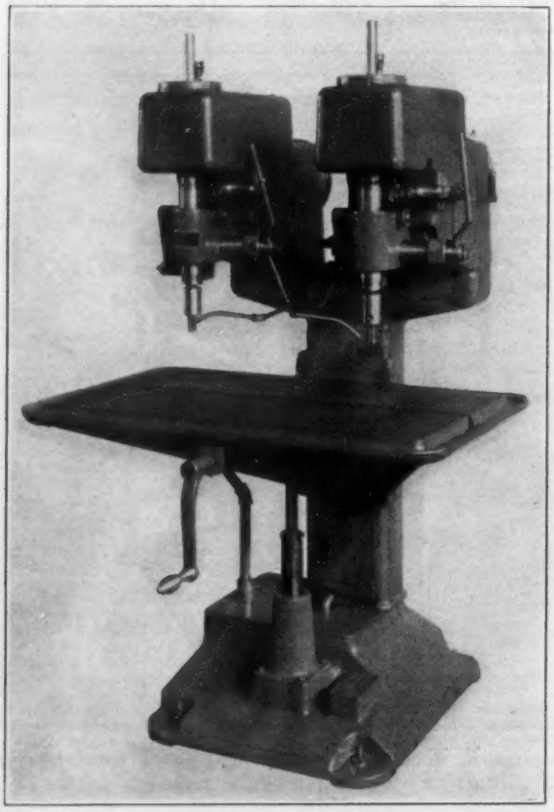
New Milling Machine Has Cam Feed to Head

No. 163

Kent-Owens Machine Co., Toledo, O., has placed on the market a new milling machine with cam feed to the head and especially suited for high production jobs. The cam feed to the head permits the use of a feed or rate of travel to suit any change in cross section of the cut. This feeding may be operated continuously or automatically disengaged upon the completion of a cycle. In the former case the cutter passes through its cycle continuously, the operator simply loading and unloading the work. An index feature can be used advantageously upon many jobs. This increases production still further as the operator can load one side while the other is milling. The accompanying illustration shows a motor driven machine with the motor mounted on the back of the column. The drive from the motor to the backshaft is through a silent chain and both the vertical feeding arrangement and spindle drive are taken by belts from the backshaft. Backshaft and spindle both are mounted on tapered roller bearings. Cam drive is through a hardened steel worm and bronze worm. Wear between worm and worm wheel can be taken up through an eccentric bushing. A heavy flywheel-type spindle is provided to prevent chatter and vibration. Overall dimensions of the table are 35 inches long by 14 inches wide. Maximum distance from the table to the center line of the spindle is 17⅛ inches. The machine may be arranged for either countershaft or motor drive.



No. 163—Milling machine with cam feed to the head, designed for high production



No. 164—Double spindle, semi automatic, geared tapping machine with multiple-disk friction clutch drive

Friction Drive Provided on Tapping Machine

No. 164

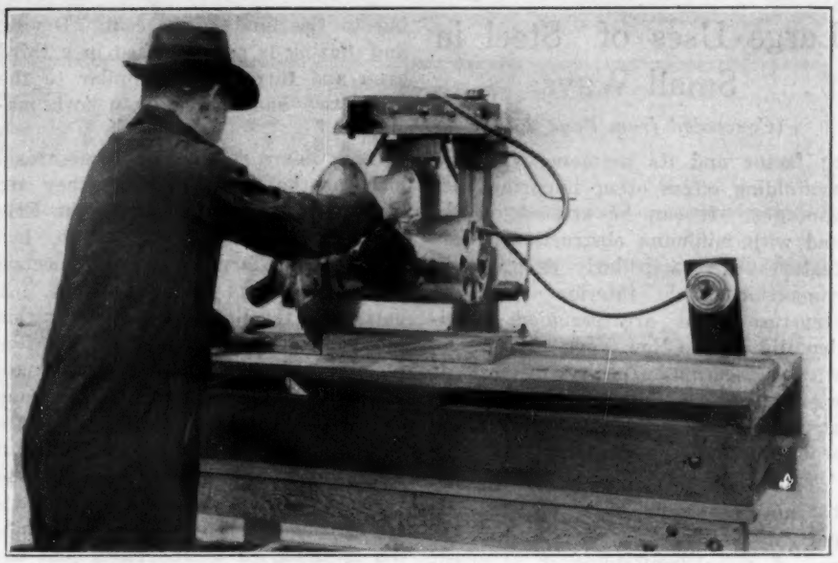
Rickert-Shafer Co., Erie Pa., has developed a new friction-driven, geared semi-automatic tapping machine. furnished with single or multiple spindles. A multiple-disk friction clutch is used to drive the spindles, minimizing the danger of tap breakage. For automatic production a block on a serrated cam, located on the left side of the spindle housing, is set to allow the proper depth travel of the tap. Pulling the handle downward engages the clutch so that the spindle and tap are driven into the work. When the required depth is reached the block trips the mechanism so that the clutch is released in one direction and is immediately thrown in, in the reverse direction, setting in operation a train of gears which reverse the spindle and the tap is backed out of the work. A slight upward thrust on the handle then reverses the mechanism and it is ready for the next piece. The machines are furnished with a pump and equipment for keeping a supply of coolant on the taps at all times. Either belt or motor drive may be provided.

AnnouncesImprovements on Woodworking Unit

No. 165

DeWalt Products Corp., Leola, Pa., has made several improvements in its portable woodworking machine. Changes in motor design make possible the delivery of considerably increased power to the work, whether ripping, cross-cutting, dadoing, mitering, beveling or any of the numerous other operations which the machine and tool attachments will accomplish. The machine will rip 4-inch fir at a

rate of 50 lineal feet per minute and may be switched from ripping to cross-cutting without turning off the power. Another improvement is the location of the dial plate with degree markings and pitch scale in front of the operator for easy adjustment for angle or bevel cutting, as shown in the accompanying illustration. The dial plate is notched at each 45 degrees for the quick finding of such angles. The motor is locked in any cutting position by means of a locking device and hand lever. Net weight of the machine is 340 pounds.



No. 165—Improved woodworking machine performing 29 different operations

Electric Water Coolers Are Developed

No. 166

Frigidaire Corp., Dayton, O., has announced five new series of electric water coolers, of flexible design, adaptable to any sort of industrial water cooling problem. An important feature of these coolers is the regulation of water temperature, minimizing the danger of cramps and similar disorders which follow the drinking of ice water by overheated workmen. Investigation has determined that water colder than 50 or 55 degrees Fahr. is harmful to workmen who labor under high temperatures. The new coolers can be regulated to provide water at 45 degrees for offices, 50 degrees for factories and 55 degrees in plants where heavy labor is done. Flexibility of the equipment is said to make installation possible at virtually any spot desired in the plant or office.

Machine Tools Lead New Equipment Items

(*Concluded from Page* 264)

chine tools and grinding equipment comprise 34.5 per cent of all descriptions presented. Record breaking activity among grinding machinery builders as well as an unusually firm market in practically all machinery centers also are contributing factors to the predominance of new machinery in these two lines.

The high positions held in the classification by electrical accessories and welding equipment demonstrate the prominence which welding work is attaining today. More and more construction is being done by welding and companies manufacturing this equipment are finding ready markets in most cases. The comparative infancy of this industry also accounts for the continued appearance of new designs. Electrical accessories include motors, switches, contactors, regulators, relays and the like. Welding equipment includes torches, generators, both acetylene and electric, electrode holders, electric welding machines and oxyacetylene cutting machines.

Shop Equipment Is Fifth

Miscellaneous shop equipment covers such items as steel floor armoring, wrenches, screwnails, pumps, compressors, and various types of indicators. Cranes and hoists are self-explanatory but include both gasoline and electric types, portable and otherwise. Crawler cranes, backdiggers, clamshells and similar units are on this list, as well as the accessories which go with them.

Metal and woodworking saws, punches, shears, cutoff saws, hand nibblers and cutting machines except oxyacetylene, make up the seventh item in the table. Furnace equipment includes such items as melting pots, pouring devices, stokers and air heaters while by materials handling equipment are meant feed pushers, trucks and conveyors.

From this brief resume a more or less graphic picture of manufacturing activity for the first six months of 1929 may be obtained. While not complete at least it is a typical cross section and possibly may present some interesting reflections on new developments in the industry.

British Metal Institute To Meet in Germany

Autumn meeting of the British Institute of Metals will be held in Dusseldorf, Germany, Sept. 9 to 12. Monday, Sept. 9, the eighth lecture will be delivered in German by Dr. A. G. C. Gwyer, member of council, on Aluminum and Its Alloys. The following papers are expected to be submitted at the technical sessions:

"Studies on the Crystallization of Gold from the Liquid State," by C. O. Bannister.
"Idiomorphic Crystals of Cuprous Oxide in Copper," by C. Blazey.
"Pinholes in Aluminum Alloy Castings," by N. F. Budgen.
"A Dilatometric Study of Some Univariant Two-Phase Reactions," by P. Chevenard, A. M. Portevin, and X. F. Wache.
"The Relative Corrodibilities of Ferrous and Nonferrous Metals and Alloys."
"The Results of Seven Years' Exposure to Air at Birmingham," by J. Newton Friend.
"An Improved Differential Dilatometer," by M. Haas and D. Uno.
"Properties of Locomotive Firebox Stays and Plates," by O. F. Hudson, T. M. Herbert, F. E. Ball, and E. H. Bucknall.
"The Creep of 80:20 Nickel-Chromium Alloy at High Temperature," by A. Glynne Lobley.
"Methods of Research in Metallography," by G. Masing.
"Reduction of Shrinkage Cavities and Vacuum Melting," by W. J. P. Rohn.
"Some Methods of Research in Physical Metallurgy," by W. Rosenhain.
"New Methods for Melting Nonferrous Metals in the Electric Furnace," by M. Tama.
"The Open Air Corrosion and Surface Patina of Copper," by W. H. J. Vernon and L. Whitby.
"Effect of Temperature Attained in Overhead Electric Transmission Cables," by A. von Zeerleder and P. Bourgeois.

Members will be welcomed at the general meeting Tuesday, Sept. 10, by a representative of the Verein Deutscher Ingenieure and Deutsche Gesellschaft fur Metallkunde, in the hall of the Eisenhuttenhaus of the Verein Deutscher Eisenhuttenleute. Visits will be paid to the foundry trade exhibition, which will be held in Dusseldorf at the time of the meeting, and also to a number of works and laboratories. Thursday, Sept. 12, there will be an excursion to visit the works of the Krupp company at Essen. Visitors will have the choice of a trip to Berlin or Holland, Sept. 13 to 15.

The 11 enamelware manufacturers of Czechoslovakia have organized a cartel, called "Smalt."

Large Uses of Steel in Small Ways

(*Concluded from Page* 255)

ty factor and its permanency, metal scaffolding offers other important advantages. It can be erected quietly and with minimum obstruction. These features are particularly desirable in connection with interior work in structures that are occupied. Incidentally, in one New York city church, with a seating capacity of 600, it was found possible to accommodate an audience of 580 persons while the scaffolding was in place.

The matter of minimum obstruction to movement and view also is important in exterior work. By the use of metal scaffolding it is possible for the architect to obtain a reasonably satisfactory view of the work as it is being erected. Often a newly constructed building does not meet the original conception of the designer, due to questions of proper light shading or other reasons. By having the work in comparatively full view during all stages it often is possible to make the necessary changes while the work is underway, and at considerable saving in expense.

Special forms of scaffolding, such as sidewalk bridges and material hoist towers, are providing an increasing outlet for tubular steel in connection with building erection. The first sidewalk bridge in which steel was used to any important extent was in the erection of the new Bismark hotel in Chicago in 1925. This was followed closely, however, on various other jobs throughout the country. Sidewalk bridges add a moderate tonnage, along with the towers, to the metal now being consumed for ordinary scaffolding.

Tubing for sidewalk bridges and towers is of heavier size than that used for ordinary scaffolding, ranging around 4½ inches in outside diameter, and the metal walls are considerably thicker. In addition to I-beams used in carrying the bridge load, metal sheathing is coming into greater use for parapets and fences in the erection of sidewalk bridges. In tower construction expanded metal is being used for enclosing the tower shafts instead of 1 x 6-inch boards.

Conveyor System Speeds Refrigerator Output

(*Concluded from Page* 254)

chine effects this transfer and removes the liners at the end of the glazing and places them on another conveyor on which they cool while going to the final spray coat. Drying and glazing is accomplished in a third oven and furnace unit similar to the other two and served by a fork machine.

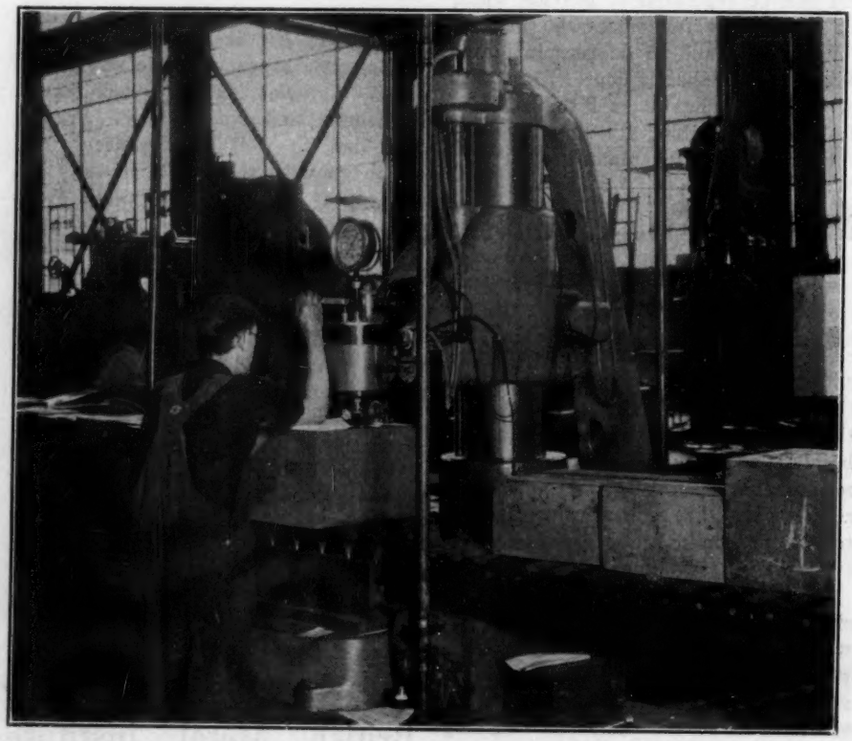
Inner doors receive the same treatment as the liners, although they are handled in separate lots. In the Erie plant the General Electric Co. has installed one large continuous electric furnace with a preheating zone. A portion of the liners pass through this unit on an overhead conveyor after receiving the second and third coats of porcelain. In the preheating zone the moisture is driven off and in the high temperature zone the porcelain is glazed. The parts move out of the furnace at the same end they entered, thus the heat given off in cooling is imparted to the parts just entering. Another advantage is that due to the gradual heating, the liners do not warp and need straightening.

Following the 24-hour storage period all parts of the cabinet are ready for assembly. The cabinets are placed on a slowly moving platform conveyor and the legs are bolted into place and the hinges and door handles attached to the doors. For insulating the liner from the outer casing wood fiber is used. Where the wood fiber is exposed to the cooling unit, which fits into the top of the refrigerator, a linen cloth is used as a covering for the insulating material. A bakelite strip is used as a nonconductor of heat between the inner and outer panels of the door and liner and cabinet. Monel metal angle plates fastened to the bakelite with monel screws bind the corners of the door and door frame tightly together.

Thorough inspection is given each refrigerator as it arrives at the end of the assembly line. Rejected cabinets are set aside and the faulty parts replaced. A test laboratory is maintained at the Erie works and experiments are constantly in progress.

Columbia Steel Corp., Torrance, Calif., is using about 10,000 tons of scrap monthly.

Builds Special Brinell Hardness Tester for Checking Die Blocks



ALL die blocks passing through the plant of the Heppenstall Forge & Knife Co., Pittsburgh, are tested on a specially designed brinell testing machine, shown in the accompanying illustration. After the brinell impression has been made in each block, the diameter of the impression in millimeters is measured and stamped on the face of the block. The special large size brinell machine with regulating motors and measuring microscope was built by the Pittsburgh Instrument & Machine Co., Pittsburgh, in co-operation with engineers of the Heppenstall company.

Editorials

Season No Handicap to July

COMMONPLACE as production records have become this year, the extraordinary performance which July is concluding ought not pass unsung. Final figures will show of a certainty that steel ingots have set a new daily peak for the month, while pig iron will approximate the July high.

For steel ingots to exceed 170,000 tons daily and pig iron 115,000 tons is no mean accomplishment at any season, but in midsummer these rates challenge unusual attention. Vacations might be expected to impede, inventories scale down specifications, the record production earlier in the year prove a handicap, the midsummer sun wilt finishing mill operations—but not in this exceptional year.

It has even become trite to forecast records. The condition of order books of the larger iron and steel producers does not indicate any letdown is in the offing. As August opens, Steel corporation subsidiaries are operating at close to practical capacity, with independent producers approximating 90 per cent. Order books today assure an August better than the wartime best.

As summarized in the Business Trend section of this issue, every market factor is propitious. Nothing has occurred to disturb the buying power of the public, which is the real basis of current prosperity.

The financial genius of one of the largest producers reiterates that business has entered a new era; that it has climbed to a plateau from the general level of which it will deviate little. The stability of prices, the comparatively few instances of concessions, indicate producers' convictions of a good third quarter.

Structural Buyers Brook No Delay

ON A recent Monday a building contractor came into the market for 300 tons of structurals for shipment by the following Thursday. One steelmaker had in stock 150 tons of approximately the section desired, which it offered provided the remainder was ordered for the next rolling, about a month hence. Another steelmaker could supply 200 tons, with a similar string on the remainder. In a "take it or leave it" frame of mind the contractor offered 150 tons to each for prompt shipments, and got his steel when he wanted it.

The incident is typical of the revolution in recent years in the marketing, or more accurately the buying, of structural steel. Hand-to-mouth buying has quickened the pace in all products, but compared with the old-time orderly, almost leisurely, manner of placing structurals, the overturn here has been most radical. For one thing, building now knows no season, and the easy winter approach to the spring building bulge has passed.

Instead of allowing ample time for drawing plans and taking off the steel, the engineer and contractor now insist on the delivery of material in no more time than formerly was given for making the drawings. On a job taking up to 700 to 800 tons, to await a mill rolling four or five weeks distant is unthinkable. Material is ordered from stock and a heavy scrap loss taken.

In the above-mentioned circumstance relating to prompt shipment of 300 tons, there was over 10 tons of wastage. It may be that the shortening of the building period and consequent reduction in interest charges is compensatory, but to the mill it appears wasteful.

Still another complication in the structural market is the widespread resort to the so-called special section or wide-flange beam, such as marketed today by the Bethlehem and Carnegie companies.

Makers of so-called standard sections only are faced with a serious competitive condition. One way out may be to accumulate generous stocks at strategic points and redouble efforts to obtain business in standard sections.

Engineer Heard in Federal Affairs

INCREASING importance is being attached to the engineering mind and engineering attitude in legislative and administrative dealings with national public questions. Perhaps the most effective link between the country's engineers and legislative bodies is the American Engineering council, which is becoming recognized as a positive force in the conduct of federal affairs. This group, organized in 1919 by President Hoover, a capable engineer himself, acts as a sort of clearing house in Washington for engineering and allied professions.

Opinions of this engineering body have had a

telling effect upon congressional legislation in national technical problems. Opposition to the Jadwin plan of flood control, instigated by the council, has come to the point where intervention by the President or congress is possible. Defeat of the bill, which provided for the loan of engineers from the bureau of public roads to Latin-American countries, is attributed in a measure to the sentiments of the council.

On such outstanding and timely questions of national defense, conservation of water power, regulation of government contracts, creation of a prosperity reserve and the establishment of a national hydraulic laboratory, engineers, through the engineering council and its committees, have expressed definite opinions and criticisms and have advanced suggestions which have had weighty effect upon legislative attitudes.

The engineering attitude and mind is needed on such projects as Boulder dam and, in fact, the entire question of suggested governmental supervision in design and construction of dams. The engineering council has selected committees to prepare reports on these problems and little doubt now exists that the content of these reports will be a major guide in determining what governmental procedure, if any, is advisable.

Plate Mills' Gain Is Coal's Loss

ACTIVITY in gas and oil pipe line construction, which already this year has been responsible in large measure for the heavy steel tonnage entered upon books of plate producers, gives indications of being sustained during the remainder of the year. Several additional gas lines recently announced will span many states and involve hundreds of thousands of tons of steel. One projected pipe line calls for 400,000 tons. Distance appears no barrier to the piping of gas from the fields to the large consuming centers and 1000-mile projects are becoming not uncommon.

Recent years have witnessed a large growth in the consumption of natural gas, both for domestic and industrial purposes, and plans for providing facilities to convey this fuel to the eastern seaboard cities indicate further substantial expansion.

Natural gas, because of its high heat value, is preferable for industrial use, such as in steel sheet normalizing furnaces. For domestic consumption, natural gas at times is mixed with artificial gas. For the latter reason public utility gas companies are interested in the development of facilities for distribution of the natural fuel.

Increased gas consumption is not without its effect upon one large basic industry—coal. Latest figures indicate that the gain in consumption of coal is failing to keep pace with that in natural gas. This competition so far has not been and probably will not be of serious proportions, but it is one of several factors that have combined to restrict the bituminous market and to prompt producers to seek new sources of consumption and cheaper operating methods.

Alien Tariff Protests a Bogey

SENATOR REED SMOOT'S position as chairman of the powerful senate finance committee and his open advocacy of protection for the domestic beet sugar industry do not detract from the verity of his observation that never in the 20 years in which he has been identified with tariff legislation have foreign protests against proposed rates been so mild.

To read anti-administration newspapers and journals it would appear that the entire civilized world is up in arms against the pending tariff measure, that reprisals are inevitable and the collection of war debts made the more uncertain. This is 99 per cent politics. The tariff gives the minority at Washington its first opening. It is easy to make a superficial and popular outcry against duties, and with a minimum of expenditure ammunition for the congressional elections next year may be collected.

Alien governments always have filed protests with the state department against a tariff, be it high or low. This is routine procedure. As Senator Smoot states, foreign chancellories would be the first to resent the imputation that they are attempting to dictate United States legislation. They keenly sense what a roorback they would engender.

Never before has the iron and steel industry been so active in tariff matters. For the first time the American Iron and Steel institute has presented a program, mostly of increased rates. Many leaders of the industry have appeared personally at Washington. Are they charlatans, as anti-administration forces would infer, and are they prompted entirely by selfish motives? More than their short-sighted critics they apprehend the importance of safeguarding the buying power of the masses, which is the basis for current, unparalleled prosperity.

As for foreign trade, like domestic trade it impinges on value. Generally speaking, when American producers offer more for the same money or as much for less money they will get the business. When it comes to business reprisals, no nation is more self-contained or in a stronger position than the United States.

And as for war debts, no nation wants to pay them anyway and the tariff affords only one more excuse.

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Conveyors Facilitate Construction of Refrigerators. Page 251.

METROPOLITAN New York continued its lead as the principal consumer of fabricated structural steel in the first half of 1929, taking 28.64 per cent of the total. Pennsylvania was second, with 13.03 per cent, while California ranked third, absorbing 7.13 per cent. Ohio, Illinois and Michigan followed in the order named. Nearly 90,000 tons of structural steel subway work figured in the New York awards. These are some of highlights from IRON TRADE REVIEW'S semiannual survey of structural steel business, the article appearing on pages 258 and 259 of this issue.

The Readers' Page

CONTENTS

For August 1, 1929

SPECIAL ARTICLES

Conveyors Speed Refrigerator Output —By E. F. Ross and H. B. Veith.....251

Large Uses of Steel in Small Ways—Steel Scaffolding 255

Co-operation of Entire Personnel Necessary for Plant Safety—By F. H. Elam 256

First Half Structural Awards Reflect Expansion of Industry—By R. T. Mason 258

Special Iron Developed for Ingot Molds.... 260

Steel Treaters Announce Technical Papers for Cleveland Meeting..... 261

New Continuous Strip Mill Delivers Stock at 2400 Feet Per Minute..... 262

Machine Tools Lead New Equipment..... 264

Editorials 269

BUSINESS TREND

Continued Industrial Activity Indicated —By John W. Hill..... 272

Railroad Traffic 272
Steel Castings..... 273
Foundry Equipment 273
Steel Price Parity.... 274
Foundry Pig Iron.. 274
Steel Price Index.... 275
Cost of Living..... 275

MARKET REPORTS

Review of Markets 276

Iron and Steel Prices.....276, 277, 278, 281, 291, 314

Pig Iron 279
Coke 280
Ferroalloys 280
Nuts, Bolts, Rivets 280
Iron, Steel Scrap.... 281
Semifinished 282
Bars 283
Plates 283
Pipe 284
Sheets 285
Tin Plate 285
Structural Shapes.... 286
Reinforcing Bars..... 287
Iron Ore 288
Railroad Equipment 288
Cold Finished Steel 289
Wire and Nails..... 289
Strip Steel 289
Nonferrous Metals.. 290
Coke By-Products.... 290
Warehouse Markets 291
Pacific Coast Markets 292
Foreign Markets 305
Machinery Markets 308
Crane Inquiry and Awards 308

GENERAL NEWS

First Half U. S. Steel Net Gains 103 Per Cent Over 1928..... 294

Foreign Trade Shows Loss in June..... 295

Industrial Men in the Day's News—J. F. Donahue 298

Men of the Industry 298
Obituary 301
Statistics of Industry 302
Here and There in Industry 303
Construction and Enterprise 307
New Incorporations 310
Trade Publications.. 311

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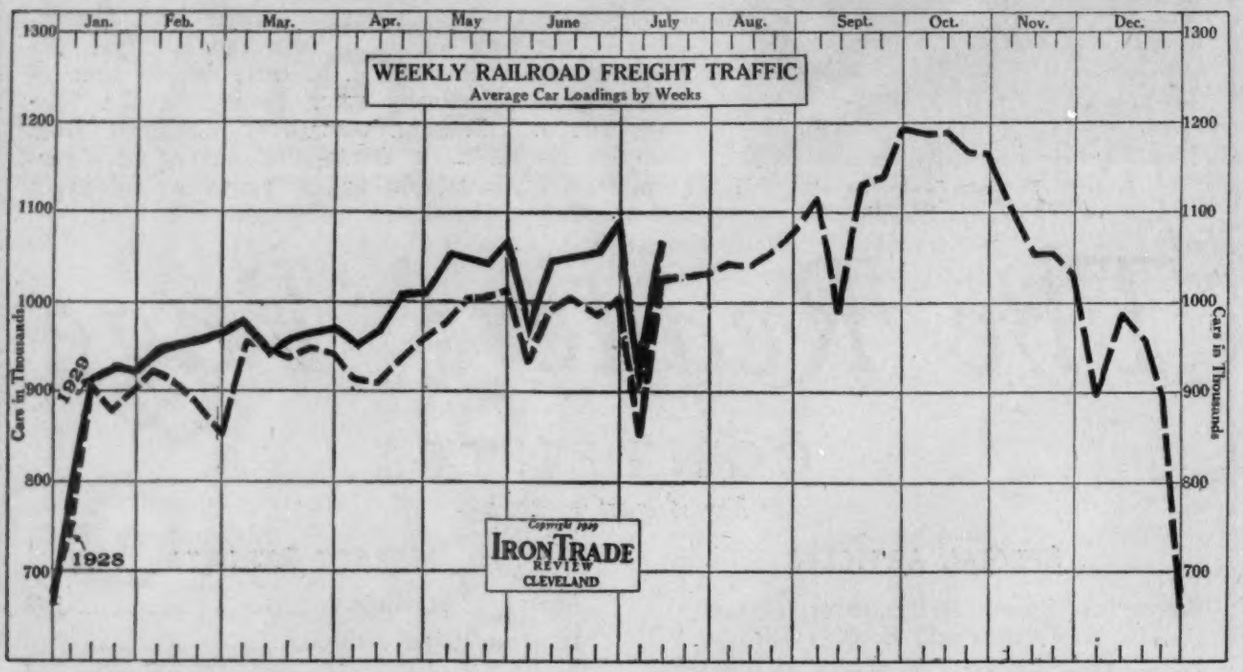
The Business Trend



Continued Industrial Activity Indicated

By JOHN W. HILL, Financial Editor

THE most important fact about the industrial situation this year is not the great peaks of activity during the spring, but the lack of significant recession now that midsummer has been reached. The spring months normally witness exceptional rates of production, while the summer months usually bring a seasonal slump. Currently industry is showing remarkable resistance to the forces making for recession.

THIS resistance is indicative of strongly favorable factors in the situation. Consumption of industrial products continues at a high level in many lines. Discussing this phase the Standard Statistics Co. says that "in the aggregate, industry is displaying extraordinary vitality, considering the season, and promises to maintain a high pace throughout the summer months."

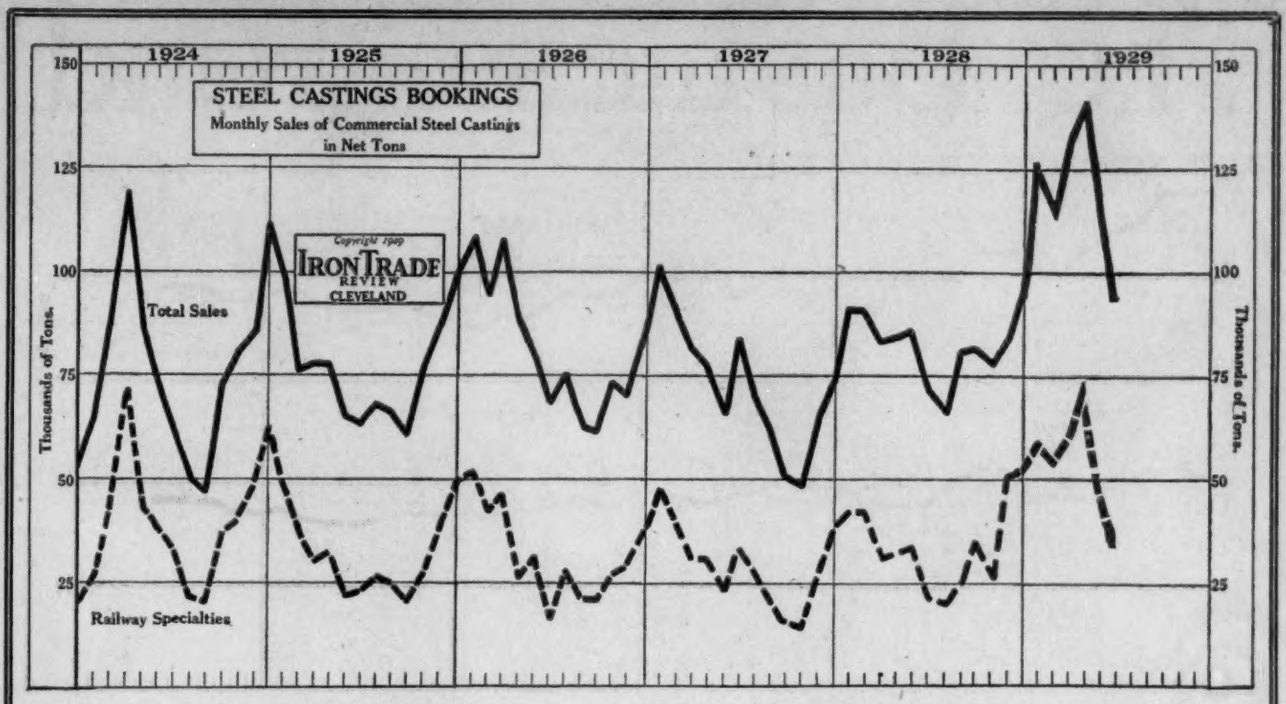
EVIDENCE of the pace of production and distribution is found in the record of railroad freight traffic. Loadings of revenue freight for the week ended July 13 promptly rebounded from the holiday drop. They rose 155,000 cars over the preceding week and they stood nearly 40,000 cars over the corresponding week one year ago.

WITH business now well launched into the last six months of 1929, the test of forecasts for that period soon will be at hand. It is beginning to seem pretty clear now that many of the clouds which recently overhung the outlook for the period are disappearing. One of the most important of these has to do with agriculture. The sweeping advances for farm products in the last two months has completely changed the picture on the farms.

INSTEAD of seriously depleted incomes and purchasing power, farmers this year should at least measure up to 1928 in these respects. This new prospect has a profound direct meaning for such lines as mail order houses, farm machinery, and automobiles. Scarcely any great industrial line will fail to benefit indirectly.

ANOTHER great factor in the outlook is credit. This also is losing much of its recent threatening aspect. Money rates have shown some tendency to ease. In addition there is not now and there has not been this year any shortage of credit for business requirements. On the whole, the outlook for the rest of the year is excellent.

The Business Trend

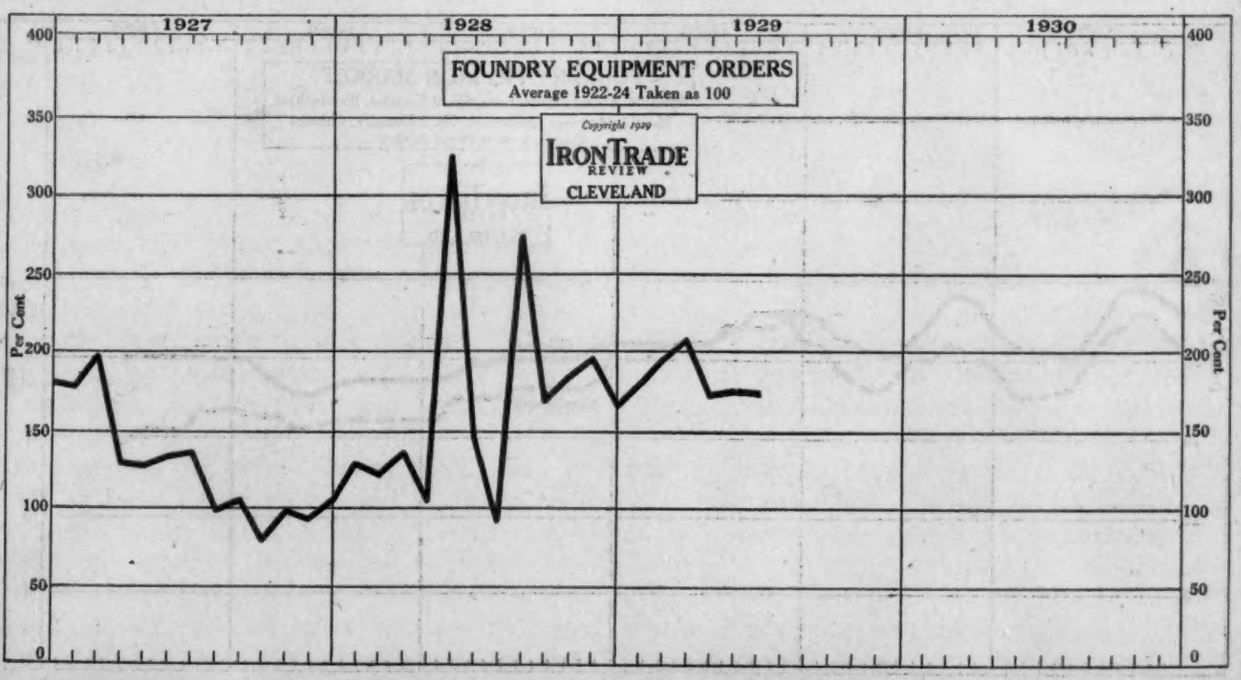


Steel Castings

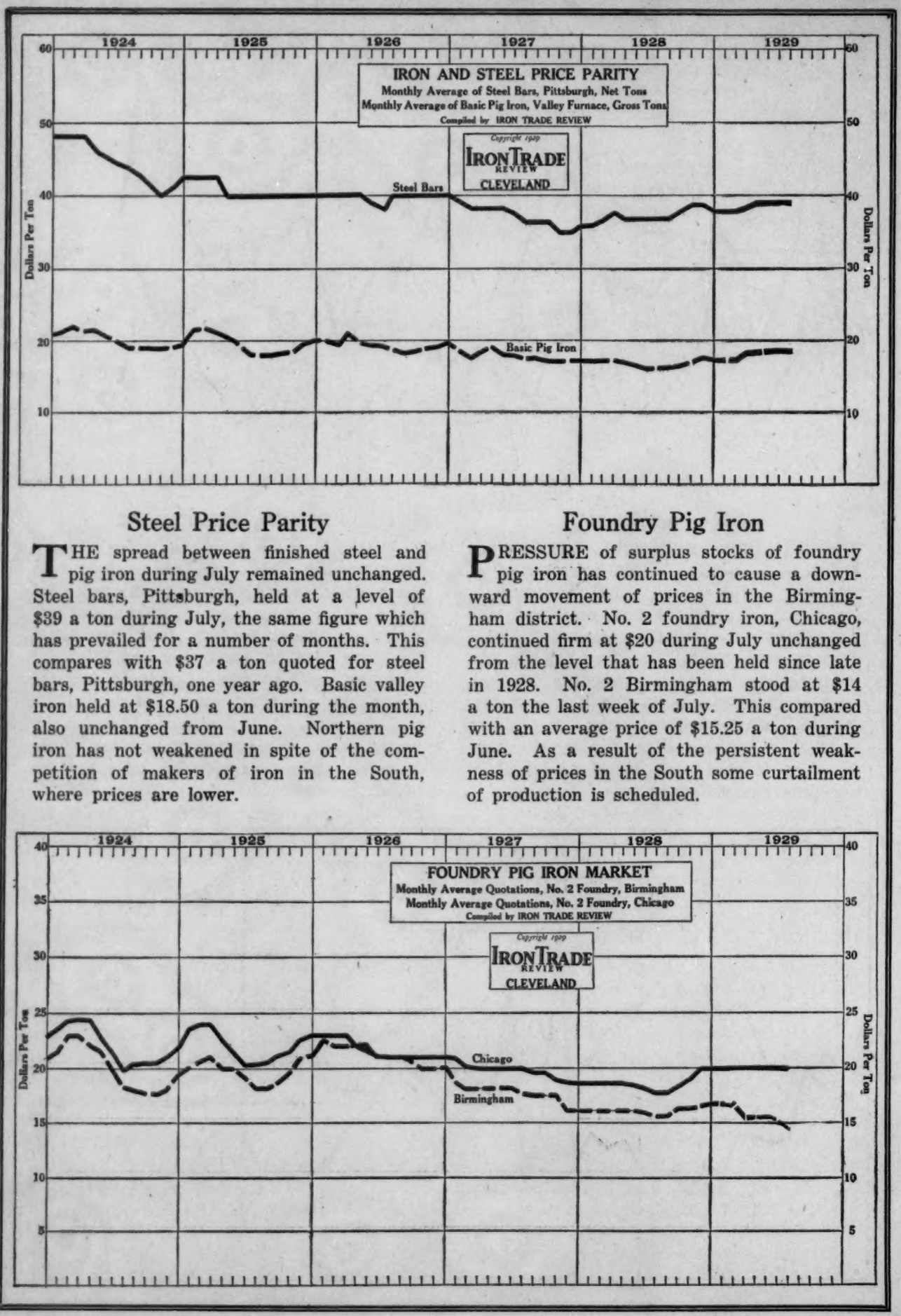
BOOKINGS of commercial steel castings in June declined to the lowest level of any month this year. Total bookings for the month were 94,559 tons, compared with 113,329 tons one month before and 72,107 tons in June, 1928. Bookings for the first six months of the year were 723,292 tons, against 509,268 tons in the like period of 1928. Commercial bookings of railway specialties in June were 35,425 tons, compared with 44,919 tons in May and 22,597 tons one year before.

Foundry Equipment

THE index of unfilled orders for foundry equipment declined in June to the lowest point of the year, according to the report of the Foundry Equipment Manufacturers' association. The index for June was 300.8, compared with 323.8 for May and 359.3 for June, 1928. The index of gross orders for the month was 177.3, compared with 177.7 for May and 149.1 for June, 1928. Shipments declined but were somewhat higher than for one year ago. The index for the month was 172.7.



The Business Trend



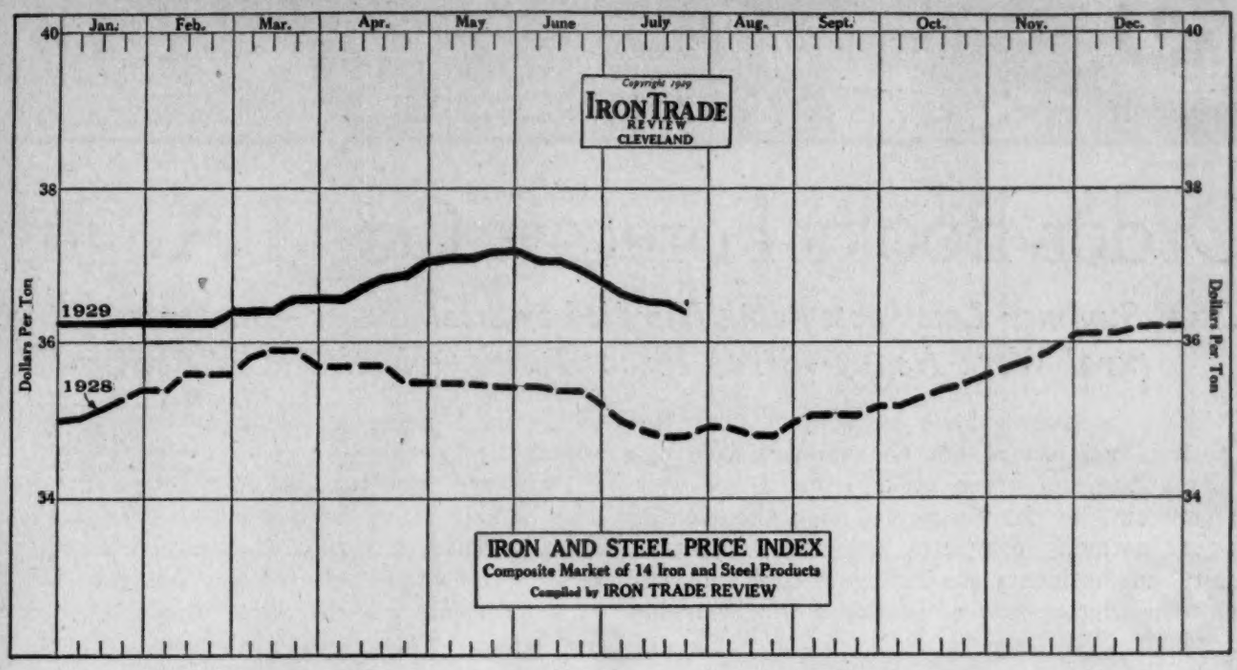
Steel Price Parity

THE spread between finished steel and pig iron during July remained unchanged. Steel bars, Pittsburgh, held at a level of $39 a ton during July, the same figure which has prevailed for a number of months. This compares with $37 a ton quoted for steel bars, Pittsburgh, one year ago. Basic valley iron held at $18.50 a ton during the month, also unchanged from June. Northern pig iron has not weakened in spite of the competition of makers of iron in the South, where prices are lower.

Foundry Pig Iron

PRESSURE of surplus stocks of foundry pig iron has continued to cause a downward movement of prices in the Birmingham district. No. 2 foundry iron, Chicago, continued firm at $20 during July unchanged from the level that has been held since late in 1928. No. 2 Birmingham stood at $14 a ton the last week of July. This compared with an average price of $15.25 a ton during June. As a result of the persistent weakness of prices in the South some curtailment of production is scheduled.

The Business Trend

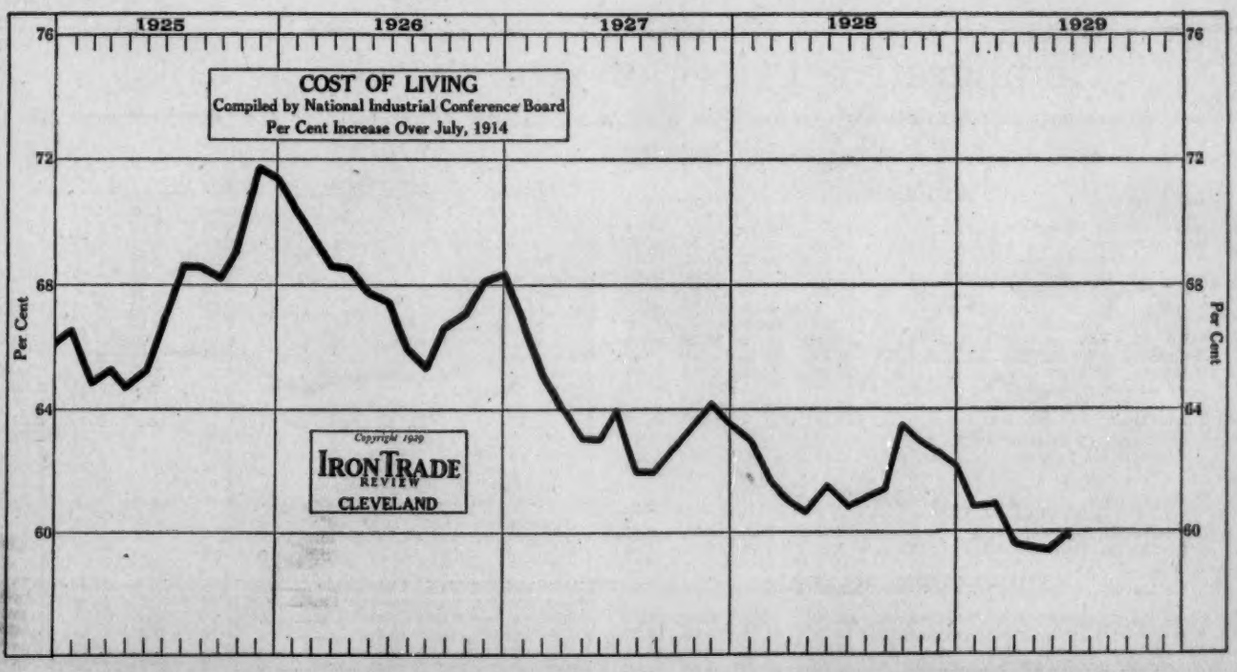


Steel Price Index

IRON TRADE REVIEW'S composite market average stood at $36.68 a ton at the close of the third week of July. This represented a decline of 45.00c a ton from the peak point reached late in May of $37.13 a ton. The percentage decline was slightly more than 1 per cent. One year ago the composite market average stood at $34.91, the present level being more than 4 per cent higher. The decline in the index is resulting from weakness in southern and eastern pig iron. Finished steel prices are firm.

Cost of Living

LIVING costs in June, as measured by the National Industrial Conference board, stood at the highest point since February. The index was 60 per cent over the 1914 level, compared with 59.4 in May and 60.9 over 1914 one year ago. In February the index stood at 161. Compared with 12 months before, practically all items entering into the cost of living have shown declines. Rent now stands at an index of 60 over 1914, compared with 63 one year ago. Index for clothing at retail is 67 over 1914.



Order Books Forecast Good August

Usual Summer Low Spots Being Hurdled by Steelmakers—Bridge and Structural Work Heavy—Scrap Prices Rising—Northwest Is Active

STEEL producers have negotiated July, the first real hazard of the summer, with operations and order books reduced not over 10 per cent, on the average, during the month. August normally completes the cycle, but producers' commitments are insurance that substantially the current rate of operation will be maintained.

No Summer Drop, No Fall Rise

There not having been the usual midsummer recession, it may well follow that there will be no compensating fall bulge. The statement of the president of the United States Steel Corp. that he does not foresee any important letdown over the remainder of the year epitomizes the sentiment of the industry.

Through most of July shipments have been making moderate inroads on order books, and steelmakers have been able not only to make more prompt delivery but also to schedule emergency requirements. The margin between shipments and bookings, however, has been narrower in the past week, especially at Pittsburgh and Chicago.

Plate and structural steel requirements have been notably heavy for the season. The two leading automotive buyers of steel have not curtailed their specifications appreciably, and introduction of new models will shortly stimulate other makers' needs. Tractor and implement demand has not succumbed quite so far to the season as formerly.

Heavy steel prices generally are firm, but in sheets and wire nails, especially cement coated, softness is more evident. For black sheets the top of the market is 2.85c, Pittsburgh, on new business, and on galvanized sheets 3.65c. Nails are off $2 to $3, with foreign competition a factor in the South and Southwest. Cold rolled strip has been shaded in the East.

Still Wait Out Northern Iron

Basic materials are on an even keel, excepting scrap, which tends toward strength. First-grade material is scarce in most districts and consump-

Comparative Prices of Iron, Steel and Coke

Representative Market Figures for This Week, Last Month, Three Months and One Year Ago

	July 31, 1929	June 1929	April 1929	July 1928
PIG IRON				
Bessemer, del. Pittsburgh	$20.76	20.76	20.26	18.76
Basic, valley	18.50	18.50	18.00	15.95
Basic, eastern, del. eastern Pa.	19.85	20.25	20.25	19.00
No. 2 foundry, del. Pittsburgh	19.76	19.76	19.86	18.26
No. 2 foundry, Chicago	20.00	20.00	20.00	17.60
*Southern No. 2, Birmingham	14.00	15.25	15.50	15.50
**No. 2X, Virginia furnace	20.00	20.00	20.75	20.50
**No. 2X, Eastern del. Philadelphia	22.26	22.76	22.26	20.76
Malleable, valley	19.00	19.00	18.50	17.00
Malleable, Chicago	20.00	20.00	20.00	17.60
Lake Superior charcoal, del. Chicago	27.04	27.04	27.04	27.04
†Gray forge, del. Pittsburgh	19.13	19.13	19.26	18.76
Ferromanganese, del. Pittsburgh	109.79	109.79	109.79	109.79

*1.75 to 2.25 silicon. **2.25 to 2.75 silicon.
†Now based on Pitts. dist. fur. price; formerly on Valley base.

COKE				
Connellsville furnace, ovens	2.75	2.75	2.75	2.60
Connellsville, foundry, ovens	3.75	3.75	3.75	3.50
SEMIFINISHED MATERIAL				
Sheet bars, open-hearth, Youngstown	35.00	35.75	35.00	33.00
Sheet bars, open-hearth, Pittsburgh	35.00	35.75	35.25	32.25
Billets, open-hearth, Pittsburgh	35.00	35.75	34.50	32.25
Wire rods, Pittsburgh	42.00	42.00	42.00	42.00

	July 31, 1929	June 1929	April 1929	July 1928
FINISHED MATERIAL				
Steel bars, Pittsburgh	1.95	1.95	1.95	1.85
Steel bars, Chicago	2.05	2.05	2.05	2.00
Steel bars, Philadelpha	2.27	2.27	2.27	2.17
Iron bars, Chicago	2.05	2.05	2.05	2.00
Shapes, Pittsburgh	1.95	1.95	1.95	1.85
Shapes, Philadelphia	2.06	2.06	2.06	2.01
Shapes, Chicago	2.05	2.05	2.05	2.00
Tank plates, Pittsburgh	1.95	1.95	1.95	1.85
Tank plates, Philadelphia	2.15	2.15	2.15	2.10
Tank plates, Chicago	2.05	2.05	2.05	2.00
Sheets, black, No. 24, Pittsburgh	2.85	2.95	2.90	2.65
*Sheets, blue anl., No. 13, Pittsburgh	2.35	2.35	2.15	2.00
Sheets, gal., No. 24, Pittsburgh	3.60	3.65	3.65	3.50
Sheets, black, No. 24, Chicago	3.10	3.10	3.10	2.80
*Sheets, blue anl., No. 13, Chicago	2.50	2.50	2.35	2.15
Sheets, galvanized, No. 24, Chicago	3.85	3.85	3.85	3.65
**Plain wire, Pittsburgh	2.50	2.50	2.50	2.45
**Wire nails, Pittsburgh	2.65	2.65	2.65	2.55
Tin plate, per base box, Pittsburgh	5.35	5.35	5.35	5.25

*Comparisons for April, 1929, and July, 1928, are with old blue annealed base, No. 10. **To large jobbers.

SCRAP				
Heavy melting steel, Pittsburgh	18.75	18.30	18.60	14.10
Heavy melting steel, eastern Pa.	16.50	16.25	17.00	12.75
Heavy melting steel, Chicago	14.75	14.95	15.95	12.30
No. 1 wrought, eastern Pa.	16.25	16.25	16.25	15.25
No. 1 wrought, Chicago	14.85	15.40	16.65	12.30
Rails for rolling, Chicago	17.50	17.50	17.50	14.50

Current Prices for Rolled Steel Products

PRICES IN CENTS PER POUND

STEEL PLATES

Pittsburgh, base	1.95c
Philadelphia, del.	2.15c to 2.25c
New York, del.	2.225c to 2.325c
Boston, del.	2.265c to 2.415c
Chicago, base	2.05c to 2.15c
Cleveland, delivered	2.14c
Lackawanna, N. Y., base	2.05c to 2.15c
Birmingham, base	2.10c to 2.20c
Coatesville, Pa., base	2.00c to 2.10c
Pacific Coast, c.i.f.	2.35c
St. Louis, del.	2.27c
Detroit, del.	2.19c to 2.24c

STRUCTURAL SHAPES

Pittsburgh, base	1.90c to 1.95c
Philadelphia, del.	2.01c to 2.11c
New York, del.	2.195c to 2.245c
Boston, del.	2.265c to 2.415c
Chicago, base	2.05c to 2.15c
Cleveland, delivered	2.09c to 2.14c
Lackawanna, N. Y.	2.05c to 2.15c
Birmingham, base	2.10c to 2.20c
Bethlehem, Pa., base	2.00c to 2.10c
Pacific Coast, c.i.f.	2.35c
Detroit, del.	2.19c to 2.24c

BARS

SOFT STEEL

Pittsburgh, base	1.95c
Chicago, base	2.05c to 2.15c
Birmingham, base	2.10c to 2.20c
Lackawanna, N. Y., base	2.05c to 2.15c
Pacific Coast, c.i.f.	2.35c
Cleveland, base, local mills	1.90c to 1.95c
Cleveland, del., outside mills	1.95c
Philadelphia, del.	2.27c to 2.32c
New York, delivered	2.29c to 2.34c
Boston, delivered	2.265c to 2.415c
Detroit, del.	2.19c to 2.24c
Pittsburgh, cold finishing	2.05c
Pittsburgh, forging quality	2.15c

RAIL STEEL

Chicago Heights	1.95c
Eastern mills	1.85c to 1.95c

IRON

Chicago, base	2.05c to 2.15c
New York, delivered	2.19c to 2.24c
Philadelphia, delivered	2.17c to 2.22c
Pittsburgh, refined	2.75c to 4.25c

REINFORCING

Pittsburgh, billet, cut lengths	2.30c
Stock lengths from mill	2.05c
Chicago, billet	2.30c to 2.90c
Chicago, rail steel	1.95c to 2.05c
Chicago, rail steel, road and bridge work	1.95c to 2.05c
Philadelphia, cut lengths	2.57c to 2.62c

SHEETS

SHEET MILL BLACK, NO. 24

Pittsburgh, base	2.85c
Philadelphia, delivered	3.17c to 3.27c
Gary, Indiana Harbor	3.05c
Chicago, delivered	3.10c
Birmingham, base	3.10c
St. Louis, del.	3.27c

TIN MILL BLACK, NO. 28

Pittsburgh, base	3.00c
Gary, base	3.10c

GALVANIZED, NO. 24

Pittsburgh, base	3.50c to 3.60c
Philadelphia, delivered	3.82c to 4.02c
Gary, Indiana Harbor	3.80c
Chicago, delivered	3.85c
Birmingham, base	3.85c
St. Louis, del.	4.02c

BLUE ANNEALED Sheets, No. 13

Pittsburgh, base	2.35c
Chicago district mills	2.45c
Chicago, delivered	2.50c
St. Louis, delivered	2.67c
Philadelphia, delivered	2.67c
Birmingham	2.50c

Plates, No. 9 and 10

Pittsburgh, base	2.10c to 2.20c
Chicago district mills	2.30c
Chicago, delivered	2.35c
Philadelphia, delivered	2.52c
St. Louis, delivered	2.52c
Birmingham	2.35c

AUTOMOMILE, NO. 20

Pittsburgh, base	4.10c
Detroit, delivered	4.39c

FURNITURE

Pittsburgh	4.20c

(Turn to the following page)

tion has never been heavier for July. In some markets scrap prices have been advanced; in others, weakness has been checked. Connellsville beehive coke has been offered in the East at $2.65, a reduction of 10 cents. Northern pig iron prices in the main have not been influenced by the demoralization of the southern market, though some melters continue to wait developments.

Seven thousand tons of railroad bridge work has been closed at Chicago. In the East, it is estimated 12,000 to 18,000 tons is pending, exclusive of 14,000 tons for two bridges over the Hackensack river in New Jersey. New building projects at Chicago aggregate upward of 13,000 tons. Competition for structural work is extremely keen and some low prices are being made.

July Orders Close to June Level

In plates as well as bars, July orders at Pittsburgh were only slightly lower than the June level, and the closing days of the month witnessed improvement. Obligations of Chicago district bar mills will easily carry them through August at their present gait. Chicago plate mills look for heavy specifications when the Milwaukee pipe interest begins fabricating its recent orders. Western tank work now on inquiry totals 10,000 tons. Bars, plates and shapes are priced at 1.95c, Pittsburgh. Hot weather has retarted sheet more than other finishing mills, but not sufficiently to lower operations much under 90 per cent. Mahoning valley mills will average three to eight weeks business on their books, assuring August operations regardless of new buying. Tin plate specifications are heavier, anticipating September needs.

July freight car awards probably will be the lightest for any month this year. Action is expected daily on 1250 cars for the Lackawanna.

Tariff Increases Are Rumored

It is reported in Washington that the senate finance committee, in rewriting the tariff bill as passed by the house, is considering increasing the duty on pig iron from $1.12½ per ton, the current rate, to $1.50. Also, that the 1-cent per pound duty on manganese ore will be applicable to a metallic content of 10 per cent and up, instead of 30 per cent and up as at present.

Iron and steel exports and imports both declined in June, but the favorable balance of the first half year is not disturbed. First half year exports were 1,591,839 tons, an increase of 17.3 per cent over the first half of 1928. Imports at 357,845 tons were 9.2 per cent under a year ago.

Independent steelmakers are operating this week at 92 per cent of capacity, compared with 91 per cent last week. With Steel corporation subsidiaries holding at practical capacity, the average for the industry is 96 per cent, a half point over last week. A year ago it was 72.

Composite Market Average

Based on Pig Iron, Billets, Slabs, Sheet Bars, Wire Rods, Steel Bars, Plates, Structural Shapes, Black, Galvanized and Blue Annealed Sheets Tin Plate, Wire Nails and Black Pipe

This week (July 31, 1929)	$36.68
Last week (July 24, 1929)	36.68
One month ago (June, 1929)	36.99
Three months ago (April, 1929)	36.81
One year ago (July, 1928)	34.91
Ten years ago (July, 1919)	47.86
Fifteen years ago (July, 1914)	22.17

IRON TRADE REVIEW composite of 14 leading iron and steel products is unchanged this week at $36.68. This gives July an average of $36.71, compared with $36.99 in June, $37.10 in May and $34.91 last July.

Current Rolled Steel Prices

PRICES IN CENTS PER POUND UNLESS OTHERWISE INDICATED

Tubular Products Quoted On Last Editorial Page—See Preceding Page For Other Products

HOOPS, BANDS, STRIPS

Hot strip, to 6-in., Pitts.	2.00c
Hot strip 6¼ to 24-in., Pitts.	1.90c
Hot strip, bands 6 in. and under, Chicago	2.10c to 2.30c
Do, 6¼ to 24 in.	2.00c to 2.10c
Cooperage stock, Pittsburgh	2.20c
Do, Chicago	2.30c
Cold rolled strip, hard coils, 16 inches and under by 0.100-inch and heavier, base Pitts., Cleve. (3 ton and over)	2.75c to 2.85c
Worcester, Mass. (3 tons and over)	2.90c to 3.00c

ALLOY STEEL

Hot Rolled
F.o.b. Mills
Alloy Quality Bar Base is 2.65c

S.A.E. Series Number	Alloy differential	Net 100 lb. bars
2000	0.25	$2.90
2100	0.55	3.20
2300	1.50	4.15
2500	2.25	4.90
3100	0.55	3.20
3200	1.35	4.00
3300	3.80	6.45
3400	3.20	5.85
4100 0.15-0.25 Mo.	0.50	3.15
4100 0.25-0.40 Mo.	0.70	3.35
4600 0.20-0.30 Mo. 1.25-1.75 Ni.	1.05	3.70
5100 0.60-0.90 Cr.	0.35	3.00
5100 0.80-1.10 Cr.	0.45	3.10
5100 Chrome Spring	0.20	2.85
6100 Bars	1.20	3.85
6100 Spring Steel	0.95	3.60
Chrome Nickel Vanadium	1.50	4.15
Carbon Vanadium	0.95	3.60
9250 (flats)	0.25	2.90
9250 (rounds squares)	0.50	3.15

Hot rolled alloy billets 4 x 4-inch and over take same price per gross ton as same specification alloys bars per net ton. Sizes under 4 x 4 to 2½ in. x 2½ in. inclusive sold on bar basis plus steel bar card extras for size. Sizes under 2½ in. x 2½ in. take bar price on net ton basis.

COLD FINISHED STEEL

Cold finished steel bars drawn or rolled, Pitts., Chi., c.l.	2.30c
Do, del. Detroit	2.575c
Shafting (turned, polished) Pittsburgh	2.30c
Shafting (turned, ground) mill (Depending on size, 1 3/16 to 7-inch)	2.65c to 3.10c
Cold finished steel bars, Cleve.	2.35c

WIRE PRODUCTS

F.o.b. Pittsburgh, Cleveland, Ironton base

(Per Pound)	Dealer trade	Large jobbers
Bright plain wire, 6 to 9 gage	2.60c	2.50c
Annealed field wire	2.75c	2.65c
Galvanized wire	3.20c	3.10c
Barbed wire, galvanized	3.40c	3.30c
(Per 100-pound keg)		
Wire nails	$2.75	$2.65
Galvanized nails	4.75	4.65
Polished staples	3.20	3.10
Galvanized staples	3.45	3.35
Cement coated nails	2.75	2.65
Manuf. wire, del. Detroit		
Wire nails, del. Detroit	$2.785 to $2.885	

Joliet, DeKalb and Waukegan, Ill., Anderson, Ind., and Chicago prices $1 per ton over Pittsburgh-Cleveland-Ironton base on products made there; Duluth $2 higher; Worcester, Mass., Fairfield, Ala., $3 higher.

Woven wire fencing, retailers, Pittsburgh-Cleveland, net ton $65.

Anderson, Ind., $1 higher, Chicago $2 higher, Duluth, Birmingham $3 higher.

CUT NAILS, CHAIN PILING

Cut nails, l.c.l., f.o.b. mills	2.70c to 2.75c
Cut nails, l.c.l. f.o.b. mills	2.80c to 2.85c
Chain, 1-in., proof coil, Pitts.	6.00c
Sheet piling, base, Pittsburgh	2.25c

CAST IRON WATER PIPE

Prices per net ton
Class B pipe

Six-inch and over, Birming'm	$37.00 to 38.00
Four-inch, Birmingham	41.00 to 42.00
Four-inch, Chicago	49.20 to 50.20
Six-inch to 24-inch, Chicago	45.20 to 46.20
Six-inch and over, New York	37.50 to 38.50
Four-inch, New York	40.00 to 41.00
Standard fittings, Bir. base	$100.00

Six to 24-inch, base; over 24-inch, plus $20; 4-inch, plus $10; 3-inch, plus $20; gas pipe fittings, $5 higher.

Class A pipe is $4 higher than Class B.

TIN PLATE TERNE PLATE

Prices per 100-pound box Pittsburgh

*Tin plate, coke base	$5.35

Gary, Ind., base 10 cents higher.

Long ternes, primes, No. 24	4.00c to 4.10c

*Price subject to quantity differentials.

WASHERS

Wrought, c.l., Pitts. dist.	$6.50 to 6.75 off
Wrought, c.l., Chicago dist.	$6.70 to 26.90 off
Lock: to dealers	85-5 off
Lock: to consumers	85 off

RAILS, TRACK MATERIAL

Standard bessemer rails, mill	$43.00
Standard open-h'th rails, mill	$43.00
Relay rails, Pitts., 60 to 90 lb.	$24.00 to 29.00
Light rails, 25 to 45, mill	$36.00
Angle bars, Chicago base	2.75c
Spikes, railroad, Pittsburgh	2.80c
Spikes, small railroad, 7/16-inch and smaller, Pitts.	2.80c
Spikes, boat and barge, Pitts.	3.00c
Spikes, railroad, Chicago	2.80c
Track bolts, Pitts., steam roads	3.80c
Track bolts, Pitts., stand. jobbers	70 off list
Track bolts, Chicago	3.80c
Tie plates, Chicago, Pitts.	$43.00

BOLTS AND NUTS

Birmingham and Chicago

Discounts are for legitimate jobbing or large consuming trade purchasing in full-case lots, apply to lists of April 1, 1927.

Small lots are 55 to 60 per cent off.

CARRIAGE BOLTS

All sizes, cut thread	60 to 70 off
Rolled thread ⅝ x 6 and smaller take 10 per cent lower list.	
Eagle list	60 to 70 off

MACHINE BOLTS

All sizes, cut thread	60 to 70 off
Rolled thread ⅝ x 6 and smaller take 10 per cent lower list.	
Lag Screws	60 to 70 off
Plow bolts, Nos. 1-2-3-7 heads	60 to 70 off
Tap bolts	60 to 70 off
Blank bolts	60 to 70 off
Stud bolts without nuts	60 to 70 off
Stove bolts, 75, 20, 10 and 5 off in pkgs., 75, 20, 10 and 5 with 2½ off in bulk.	
Tire bolts	60-5 off

Nuts

Semifinished	60 to 70 off

HEXAGON CAP SCREWS

Milled	80-10-5 off
Upset 1 in. diam. and smaller	5 off

SQUARE HEAD SET SCREWS

Milled	80-5 off
Upset 1 in. diam. and smaller	80-10-5 off

RIVETS

Struc., c.l., Pitts-Cleve.	3.10c
Structural, c.l. Chicago	3.20c
**7/16-inch and smaller, Pitts.	70 and 10 off
Chi., Cleve.	70 to 70 and 10 off

**Some makers quoting 70 off with freight allowed on 300 pounds or more.

Raw Materials and Semifinished Products

SEMIFINISHED MATERIAL

Prices Per Gross Ton
BILLETS AND BLOOMS
4 x 4-inch base

Pittsburgh, open-hearth	$35.00
Pittsburgh, bessemer	35.00
Youngstown	35.00
Cleveland	35.00
Philadelphia	40.30
Chicago	37.00
Forging, Chicago	42.00
Forging, Pittsburgh	40.00 to 41.00
Forging, Philadelphia	45.30

SHEET BARS

Pittsburgh	$35.00
Youngstown	35.00
Cleveland	35.00
Chicago	37.00

SLABS

Pitts., Young.	$35.00
Cleveland	35.00

WIRE RODS

Pittsburgh, Cleveland	$42.00
Chicago	43.00

SKELP

All grades, Pittsburgh	1.90c to 1.95c

IRON ORE

LAKE SUPERIOR ORE
Per Gross Ton, Lower Lake Ports

Old range bessemer, 51½%	$4.80
Mesabi bessemer, 51½%	4.65
Old range nonbessemer, 51½%	4.65
Mesabi nonbessemer, 51½%	4.50
High phosphorus, 51½%	4.40

EASTERN LOCAL ORES
Cents per unit delivered at Eastern Pennsylvania and New Jersey furnaces

Foundry and basic, 56-63%	8.00
Copper free low phosphorus 58 to 65 per cent	nominal

FOREIGN ORE
Cents per units, alongside docks Atlantic ports

Foreign manganiferous ore, 45-55% iron, 6-8% manganese	11.00 to 11.50
North African low phosphorus	12.00 to 12.50
Swedish foundry or basic, 65%, nominal at	9.00 to 10.00
Spanish and North African basic, 50 to 60 per cent	11.50 to 12.00
Newfoundland foundry, 55%	nominal
Tungsten early fut., short ton unit, duty paid	15.75 to 16.00

MANGANESE ORE

Prices do not include duty of 1 cent per pound of metallic manganese contained.

Brazilian	34 to 36 cents
Indian	34 to 36 cents
Caucasian, (53-55 per cent)	36 cents

FLOURSPAR

85 and 5 per cent grade

Washed gravel, Kentucky and Illinois mines, per net ton	$18.00
Washed gravel, import duty paid east. tide., gross ton	$20.15

REFRACTORIES

FIRE CLAY BRICK
Per 1000 f.o.b. works
First Quality

Pennsylvania	$43.00 to 46.00
Ohio	43.00 to 46.00
Illinois	43.00 to 46.00
Kentucky	43.00 to 46.00
Missouri	43.00 to 46.00
Maryland	43.00 to 46.00
Georgia and Alabama	40.00 to 45.00

Second Quality

Pennsylvania	35.00 to 38.00
Ohio	35.00 to 38.00
Illinois	35.00 to 38.00
Kentucky	35.00 to 38.00
Missouri	35.00 to 38.00
Maryland	35.00 to 38.00
Georgia and Alabama	30.00 to 35.00

SILICA BRICK

Pennsylvania	43.00
Joliet, Ill., East Chicago, Ind.	52.00
Birmingham	50.00 to 51.00

MAGNESITE BRICK
Pet Net Ton

9 x 4½ x 2½	65.00

MAGNESITE
Net Ton Chester, Pa., and Baltimore base

Dead-burned grain magnesite	40.00

CHROME BRICK
Net Ton Chester, Pa., and Baltimore base

9 x 4½ x 2½	45.00

Pig Iron

Market Is Quieter—July Shipments Less Than Those of June—Lower Prices Reported on Southern Iron Slows Action in North

HESITANCY of some northern melters in closing for pig iron is ascribed to uncertainty concerning the effect of low-priced Alabama iron. So far, however, the northern prices have remained firm, due to substantial orders on furnace books and continuance of shipments unusually large for this time of year. Alabama iron is reported to have been sold below $14, base, Birmingham, St. Louis reporting 2000 tons closed there at the equivalent of $12.27, furnace, though the seller had intended doing only $13, the suspension of a low freight rate causing the discrepancy. July shipments in general were not up to June. Not enough new business is developing to test valley prices. Furnace interests at Cleveland booked 24,000 tons during the week.

PITTSBURGH, July 30.—Shipments of pig iron continue heavy, the July total comparing favorably with that of June, though new business is failing to keep the pace. Buying is fairly steady, but large orders are lacking, and some of the anticipated third quarter coverage has not materialized. Standard Sanitary Mfg. Co. has placed several lots of foundry iron, 500 tons each, for its local district plant, to supplement former orders. Some orders received from other melters represent only a portion of their requirements for the next two months. The market retains a strong tone, the low level of furnace stocks steadying prices. Production over the past 12 months ran behind shipments, with the result that surplus supplies of some grades have been practically depleted, while all are substantially less than a year ago. Only four merchant furnaces are in operation, although the Cherry Valley stack at Leetonia is scheduled to go in blast soon. No deviation is noted in prices on going business, although there are few open market sales to test $18.50, valley, on basic and No. 2 foundry, and $19 on bessemer and malleable.

Boston, July 30.—Sales of pig iron the past week amounted to about 5000 tons, of which 1500 tons was booked by the Mystic Iron Works. One Buffalo furnace advanced its price to $18.50, but others quote $18. One textile manufacturer ordered 1500 tons, duplicating a previous order, while another textile manufacturer took 1000 tons of No. 1X and No. 2X. It is reported another textile manufacturer is in the market for 1000 tons of low phosphorus iron.

Buffalo, July 30.—Small orders for pig iron continue to increase. Shipments are good, and backlogs are being reduced. Producers claim $18, base, is the minimum they will quote on eastern foundry. New inquiries include one for 4000 to 5000 tons of malleable and one for 1000 tons of foundry, both from the East.

Cleveland, July 30.—July pig iron shipments by furnace interests with headquarters in Cleveland were not as large as those of June. The past week showed an improvement over the earlier weeks of July for some makers. Business is holding up exceptionally well for midsummer, sales during the week just closed amounting to 24,800 tons, compared with 20,000 tons in the week preceding. An Indiana melter is understood to have closed for 5000 tons, shipment to be divided nearly equal as between third and fourth quarters. New inquiries are lighter than in several weeks. Prices are steady, Cleveland furnaces holding to $18.50, base, for outside shipment and $19 for local delivery.

Youngstown, O., July 30.—Merchant furnace producers continue to ship practically their output, especially of foundry and basic grades. Bessemer sales are slow and for small individual lots. Little southern iron has come into this district in the past ten years. Quotations appear steady at $18.50 for No. 2 foundry and basic, and $19 for bessemer and malleable.

Cincinnati, July 30.—The continued firmness of northern pig iron is in contrast with the weakness of southern iron. This is giving the market an undertone of uncertainty, although little southern iron is being sold. A Muncie, Ind., melter wants 100 to 300 tons of northern foundry. Two other Indiana consumers are in the market, one for 300 tons of malleable and the other for 200 to 400 tons of northern foundry.

Chicago, July 30.—The price of $20, Chicago furnace, is being held as the base for northern pig iron. A number of merchant iron buyers, who are not southern iron users, are holding back on future commitments because of the movement of southern iron into this territory, but thus far there has been no weakening. No. 5 Iroquois furnace at South Chicago will be blown in soon, after having been down several weeks for relining.

Several carload sales of southern iron were made in this territory in the past week for test purposes, aggregating 500 to 1000 tons. Sales of eastern iron for delivery by vessel are much below those of last year for the comparable period. The tenth cargo has been docked in the Chicago district. Active buying of northern foundry and malleable iron is reported in northern Indiana and southern Michigan, a number of melters closing for the remainder of the year. July shipments are slightly under those of June. Deliveries for the first seven months of the year will set a record for any similar period.

St. Louis, July 30.—Purchasers of pig iron in this district are marking time, due to uncertainty relative to prices. Sales of southern iron have been reported which figure back as low as $12.27, Birmingham. The

(*Concluded on Page* 293)

Pig Iron Prices

Per Gross Ton

Bessemer, valley furnace	$19.00
Bessemer, del. Pittsburgh	20.76
Basic, valley furnace	18.50
Basic, Pitts. dist. fur.	19.00
*Basic, del. Pittsburgh	19.63 to 20.13
Basic, Buffalo furnace	18.50
Basic, del. eastern Pa.	19.85 to 20.25
Malleable, valley furnace	19.00
Malleable, Pitts. dist. fur.	19.50
*Malleable, del. Pittsburgh	20.13 to 20.63
Malleable, Cleve. fur. for local del.	19.00
Malleable, Chicago furnace	20.00
Malleable, Buffalo furnace	20.00
Malleable, del. eastern Pa.	21.76 to 22.90
Malleable, Granite City fur.	20.50
No. 1 foundry, Chicago furnace	20.50
No. 1X, Eastern del., Phila.	22.76 to 23.26
No. 1X, Buffalo furnace	21.00
No. 2 foundry, valley furnace	18.50
No. 2 fdy., Pitts, dist. fur.	19.00
*No. 2 foundry, del. Pittsburgh	18.63 to 20.13
No. 2 plain, Buffalo furnace	19.50
No. 2 foundry, Chicago furnace	20.00
No. 2 fdy. Cleve. fur. for local del.	19.00
No. 2 fdy., Granite City fur.	20.00
No. 2 plain, del., Phila.	21.76 to 22.26
No. 2 plain, Virginia furnace	19.50
No. 2 plain, Buffalo, del. Boston	22.41 to 22.91
No. 2 plain, N. J., tidewater	20.78 to 21.78
No. 2 Alabama, Bir. base	13.50 to 14.50
No. 2 Tenn., Birmingham base	14.00 to 14.50
No. 2 Tenn., del. Cincinnati	18.19 to 18.69
No. 2 Alabama, del., Cincinnati	17.69 to 18.19
No. 2 Alabama, del., Cleveland	20.51 to 21.01
No. 2 Alabama, del., Chicago	20.01 to 21.01
No. 2 Alabama, del. St. Louis	18.92
No. 2 Ala., Phila., dock dely.	19.75 to 21.01
No. 2 Ala., Balt., dock dely.	19.50 to 20.76
No 2 Ala., Boston, dock dely.	20.25 to 21.41
No. 2X, east, N. J., tidewater	21.28 to 22.28
No. 2X, eastern, del. Phila.	22.26 to 22.76
No. 2X, foundry, Buffalo furnace	20.00
No. 2X, Buffalo, del. Boston	22.91 to 23.41
No. 2X, Virginia furnace	19.50 to 20.00
Gray forge, Pitts. dist. fur.	18.50
*Gray forge, del. Pittsburgh	19.13 to 19.63
Low phos., standard, valley	27.00
Low phos., standard, Phila.	24.26 to 24.76
Low phos., copper bearing fur.	23.00 to 23.50
Charcoal, Superior, del., Chicago	27.04

*Freight from Pittsburgh district furnace to points in Pittsburgh district 63c, 76c and $1.13 per ton.

CANADIAN PRICES

No. 1 foundry, del. Toronto	$24.60
No. 1, foundry, del. Montreal	26.00
No. 2 foundry, del. Toronto	24.10
No. 2 foundry, del. Montreal	25.50
Malleable, del. Toronto	24.60
Malleable, del. Montreal	26.00
Basic, del. Montreal	24.50

Silvery iron, Jackson county, O., furnaces, in per cents: 5—$23 to $24; 7—$25 to $26; 8—$26 to $27; 9—$27 to $28; 10—$29 to $30; 11—$31 to $32; 12—$33 to $34; 13—$35 to $36.

Bessemer ferrosilicon, Jackson county, O., furnaces, in per cents: 10—$31 to $32; 11—$33 to $34; 12—$35 to $36; 13—$37 to $38; 15—$41.50 to $42.50; 16—$43 to $44.

Coke

Beehive Fuel Market Easier for Eastern Shipment — Demand From Foundry Shows Reduction

FURNACES are taking their usual quotas of coke on contracts, but specifications from foundries have decreased considerably. Beehive furnace fuel is easier at $2.65 to $2.75, in the eastern markets, and despite close regulation some surplus is noted. Open market sales generally are restricted to small lots for prompt shipment. Less than 60 by-product coke ovens in Alabama are idle.

Pittsburgh, July 30.—The market for beehive coke is quiet, with shipments on contracts practically the only activity. Orders are received occasionally for small lots of furnace coke for early delivery at unchanged prices of $2.75 to $2.85. The latter figure prevails for the smaller lots. Close regulation of production to consumption tends to stabilize the market, lack of offerings from makers matching the light demand. Shipments show little further decrease from a month ago except foundry coke, demand for which continues dull. Oven operations have been stable over the past four weeks.

Production of coke in the Connellsville region for the week ended July 20 was 101,640 tons, compared with 101,840 tons the preceding week and 28,620 tons a year ago, according to the *Connellsville Courier*.

Boston, July 30.—The coke situation is unchanged, foundries taking just enough to keep headway. Prices are steady.

New York, July 30.—Beehive furnace coke is easier, now holding at $2.65 to $2.75, Connellsville. Contract specifications have been moving less actively, with a result that coke is commencing to accumulate on the tracks at some ovens. Foundry coke is unchanged at $3.75 to $4.85, Connellsville, and by-product foundry coke at $9 to $9.40, delivered, Newark, N. J.; $11, delivered New England, and $9, delivered, Philadelphia.

Cincinnati, July 30.—July was a much better month for coke specifications than June. New business consists chiefly of spot orders. Prices of all grades are firm.

St. Louis, July 30.—Typical summer conditions exist in the coke situation in this district. While shipments of metallurgical grades continue well above the average at this time during the past several years, the volume has declined as compared with three weeks ago. Prices are steady.

Birmingham, Ala., July 30.—Less than 60 of the 1380 by-product coke ovens in this district are idle, and shipments continue steady. The quotation on foundry coke has been held at $5 more than a year and a half.

Coke Prices

Prices per Net Ton

Beehive Ovens	
Connellsville furnace	$2.75 to 2.85
Connellsville foundry	3.75 to 4.85
New River foundry	6.00 to 6.50
Wise county foundry	4.25 to 5.00
Wise county furnace	3.50 to 4.75
By-Product Foundry	
Newark, N. J., del.	$9.00 to 9.40
Chicago ovens	8.00
New England del.	11.00
St. Louis del.	9.00
Birmingham, ovens	5.00
Indianapolis, del.	8.25
Ashland, Ky., ov., Connell. basis	6.50
Portsmouth, O., ov., Connell. basis	6.50
Buffalo ovens	8.75
Detroit, ovens	9.00
Philadelphia, del.	9.00

Ferroalloys

Shipments Continue at Active Rate—Prices Steady

New York, July 30.—Steadiness prevails in ferromanganese, with the market unchanged at $105, duty paid, tidewater, and specifications against contracts going forward briskly. Domestic spiegeleisen, 19 to 21 per cent manganese content, is steady at $34, furnace. English spiegeleisen, 26 to 28 per cent, is nominal at $36.50, duty paid, tidewater. The tungsten market continues unusually strong. Prices of ore average around $16 a short ton unit, duty paid. Domestic scheelite is $16.50 for October shipment, with nothing available earlier, and little available for that month. Bolivian scheelite has sold at $16 for August shipment from New York. Chinese wolframite usually is $16, though some lots are available about 25 cents less for September shipment from China. There appears to be nothing in the market for earlier position. Ferrotungsten and the various alloys like vanadium and chrome are unchanged.

Pittsburgh, July 30.—Demand for some grades of special ferroalloys is running below the June rate, although heavy shipments continue in ferromanganese and spiegeleisen. Ferrotungsten is strong at a minimum of $1.40. Spot demand for practically all grades is light although prices are well maintained on ferromanganese and spiegeleisen on the occasional carload orders that appear. Fluorspar shipments continue heavy, with the market firm at $18. Ferromanganese continues $109.79, delivered Pittsburgh, with 19 to 21 per cent spiegeleisen $34 for lots up to 100 tons.

Australian Iron & Steel Co., Port Kembla, Australia, expects to complete its mill and steel works at that place about March, 1931. The spun cast pipe works there are ready for operation. The blast furnace at this works started operations in August, 1928.

Bolts, Nuts, Rivets

July Sales Expected to Be Close to June Total

NUT AND BOLT PRICES, PAGE 278

Pittsburgh, July 30.—A slight improvement in specifications for bolts, nuts and rivets the latter part of this month is expected to bring total July business only slightly below June. Jobbers are buying in small quantities and holding down stocks, but a well diversified demand is coming from consumers. Operations are well maintained at 65 to 70 per cent. The market is firm at 60 to 70 off for bolts and nuts, and 3.10c, Pittsburgh, for large rivets.

Cleveland, July 30.—While some makers of nuts, bolts and rivets report their July volume fully equal to that of June, recent orders have shown a tendency to decline. The first half was the largest in the history of one important producer. Prices are firm.

Chicago, July 30.—Orders for bolts, nuts and rivets reflect the heavier trend of late July. It is indicated July specifications will come close to June, and are ahead of a year ago. Bolts and nuts are reported steady at 60 to 70 off list.

New York, July 30.—Demand for bolts and nuts continues to show a decided falling off, but prices are unchanged. Buying here is fully 10 to 15 per cent under that of June, which was not brisk. Eastern mills are operating 60 to 65 per cent. The most notable recent order is 100 tons of bolts for the Raymond Concrete Pile Co.

Ferroalloy Prices

(In dollars, except ferrochrome)

Ferromanganese, 78 to 82 per cent, tidewater, duty paid	$105.00
Ferromanganese, del. Pittsburgh	109.79
Spiegeleisen, 19 to 21 per cent, domestic furnace, spot†	34.00
*Ferrosilicon, 50 per cent, freight allowed, carloads	83.50
*Do, less carload	88.50
Do., 75 per cent	130.00 to 150.00
Ferrochrome, 66-70 chromium, 4-6 carbon, cts. per lb. con., del.	11.00
Do., for spot delivery	11.50
Ferrotungsten, stand., lb. cont.	1.40 to 1.45
Ferrovanadium, 30-40 per cent, per lb., contained, on analysis	3.15 to 3.65
Ferro-carbon-titanium carload producer's plant, net ton	160.00
Do., one ton to carload	170.00
Ferrophosphorus, per ton, carload 17 to 19 per cent, Rockdale, Tenn., basis (18 per cent)	91.00
Ferrophosphorus, electrolytic, per ton, carload, 23-25% f.o.b. Anniston, Ala. (24 per cent)	122.50

†Quantity diff. apply on 100 tons and over.
*These prices contract, spot $5 higher.

Scrap

Prices Advancing on Small Supply and Heavy Demand—Much Strength Is Shown

UNDERLYING strength that has prevented prices of iron and steel scrap from declining sharply in the past few weeks now is acting as an upward force and prices are going higher by slow steps. Supplies are scarce and stocks are low. Consumers are conservative in buying or the advance would be rapid.

Chicago, July 30.—While stronger sentiment has persisted in iron and steel scrap, prices are virtually without change. Activity is routine as dealers are unable to make headway in future obligations, consumers buying almost entirely for spot needs, covered by early shipment. Withdrawal of the Gary consumer temporarily from the market narrows the consuming channel, and this tends to check what might otherwise result in advancing quotations. That melter has reduced cold metal stocks and is using more hot metal for its steelworks operations. Stronger outside markets and relative scarcity of prepared scrap in dealers' yards contribute to the stronger feeling. Some evidence appears that industrial producers are holding for higher prices, but there is no scarcity of available supplies. Heavy melting steel continues at $14.75 to $15.25. A wide range of quotations is shown for several grades. Selected axle turnings for electric furnace use are sold as high as $15, delivered in the Chicago switching district, while orders are reported at $13.

Boston, July 30.—Scrap prices con-

Iron and Steel Scrap Prices

Corrected to Tuesday noon. Gross tons delivered to consumers, except where otherwise stated

Steel Works Scrap

HEAVY MELTING STEEL

Birmingham	12.00 to 12.50
Boston, dealers	12.50 to 13.00
Boston, No. 2	10.00 to 10.50
Buffalo, No. 1	16.00 to 17.50
Buffalo, No. 2	14.50 to 14.75
Chicago	14.75 to 15.25
Cincinnati, deal.	14.00 to 14.25
Cleveland, No. 1	15.50 to 16.00
Cleveland, No. 2	14.00 to 14.50
Detroit, No. 1 deal.	14.00 to 14.50
Detroit, No. 2 deal.	11.50 to 12.00
East Pa., del. mill	16.50 to 17.00
N. Y., deal. R. R.	12.50 to 13.35
N. Y., deal. yd.	8.25 to 9.25
Pittsburgh, No. 1	18.50 to 19.00
St. Louis, No. 1	14.50 to 15.00
Valleys, No. 1	18.00 to 18.50

COMPRESSED SHEETS

Buffalo (dealers)	14.50 to 14.75
Chicago	13.00 to 13.50
Cleveland	15.50 to 16.00
Detroit, dealers	14.00 to 14.50
E. Pa. new mat.	15.00
Pittsburgh	18.25 to 18.50
Valleys	17.75 to 18.00

BUNDLED SHEETS

Buffalo	12.00 to 12.50
Cincinnati, deal.	11.25 to 11.75
Cleveland	12.50 to 13.00
Eastern Pa.	11.50
Pittsburgh	16.00 to 16.50
St. Louis	10.50 to 11.00

SHEET CLIPPINGS LOOSE

Chicago	8.75 to 9.25
Cincinnati	9.00 to 9.50
Detroit, dealers	9.00 to 9.50
St. Louis	10.50 to 11.00

STEEL RAILS, SHORT

Birmingham	14.00 to 14.50
Boston	10.50 to 12.50
Buffalo	19.00 to 19.25
Chicago (3 feet)	17.50 to 18.00
Chicago, 2 ft. and under	18.00 to 18.50
Cincinnati, deal.	18.50 to 19.00
Detroit, dealers	17.00 to 17.50
Pittsburgh (3 ft.)	20.00 to 21.00
Pittsburgh, 2 ft. and under	20.50 to 21.50
St. Louis	17.00 to 17.50

STOVE PLATE

Birmingham	12.50 to 13.00
Boston consumers	11.00 to 11.50
Buffalo	12.75 to 13.25
Chicago, net	11.50 to 12.00
Cinn., deal., net	9.25 to 9.75
Detroit, net, deal.	9.50 to 10.00
Eastern Pa.	11.50 to 12.00
N. Y., deal., mill	8.00 to 8.50
St. Louis	12.50 to 13.00

COUPLERS, SPRINGS

Buffalo	19.00 to 19.50
Chicago	16.50 to 17.00
Eastern Pa.	21.00 to 21.50
Pittsburgh	21.50 to 22.00
St. Louis	15.00 to 15.50

ANGLE BARS—STEEL

Chicago	16.50 to 17.00
St. Louis	14.50 to 15.00

LOW PHOSPHORUS

Buffalo, billets and bloom crops	19.50 to 20.00
Cleve. billet and bloom crops	17.50 to 18.00
Eastern Pa.	21.00 to 22.00
Pitts. billet and bloom crops	22.50 to 23.50
Pitts., sheet bar crops	21.00 to 22.00

FROGS, SWITCHES, GUARDS

Chicago	16.50 to 17.00
St. Louis	16.25 to 16.75

SHOVELING STEEL

Chicago	14.75 to 15.25
Cleveland	11.00 to 11.50
Detroit, dealers	9.00 to 9.50
St. Louis	14.00 to 14.50

Iron Mill Scrap

RAILROAD WROUGHT

Birmingham	10.00 to 11.00
Boston, dealers	11.00 to 11.50
Buffalo, No. 1	13.50 to 14.00
Buffalo, No. 2	16.00 to 16.50
Chicago, No. 1	14.85 to 15.40
Chicago, No. 2	14.75 to 15.25
Cinn., No. 2	14.00 to 14.25
Eastern Pa.	16.00 to 16.50
N. Y., No. 1 deal.	12.00 to 12.50
Pittsburgh, No. 2	18.50 to 19.00
St. Louis, No. 1	13.00 to 13.50
St. Louis, No. 2	14.00 to 14.50

SPECIFICATION PIPE

Boston	9.75 to 10.00
Eastern Pa.	15.00
New York, deal.	10.25 to 10.75

BUSHELING

Buffalo, No. 1	14.50 to 14.75
Chicago, No. 1	13.00 to 13.50
Cinn., No. 1 deal.	11.00 to 11.25
Cinn., No. 2	7.00 to 7.50
Cleveland, No. 1	14.50 to 15.00
Cleveland, No. 2	10.75 to 11.00
Detroit, No. 1 deal.	13.00 to 13.50
St. Louis, No. 1	10.00 to 10.50
Valleys, new No. 1	16.00 to 16.50

MACHINE SHOP TURNINGS

Birmingham	7.00 to 8.00
Boston	6.60 to 7.10
Buffalo	7.25 to 7.75
Chicago	7.50 to 8.00
Cincinnati, deal.	8.50 to 9.00
Cleveland	9.50 to 10.00
Detroit	8.25 to 8.75
Eastern Pa.	11.50 to 12.00
New York, deal.	7.50
Pittsburgh	12.00 to 12.50
St. Louis	7.50 to 8.00
Valleys	11.00 to 11.25

MIXED BORINGS, TURNINGS
For blast furnace use

Boston, dealers	6.00 to 6.25
Buffalo	11.50 to 12.00
Cincinnati, deal.	9.00 to 9.25
Cleveland	10.75 to 11.00
Detroit, dealers	9.25 to 9.75
Eastern Pa.	11.00
New York, deal.	7.00 to 7.25
Pittsburgh	12.50 to 13.00

CAST IRON BORINGS

Birmingham, chem.	13.00 to 13.50
Birmingham, plain	7.00 to 8.00
Boston chem.	10.00 to 10.25
Boston, dealers	6.50 to 6.60
Buffalo	11.50 to 12.00
Chicago	9.75 to 10.25
Cincinnati, deal.	9.25 to 9.50
Cleveland	10.75 to 11.00
Detroit, dealers	8.75 to 9.25
Eastern Pa.	11.50
Eastern Pa., chem.	14.50 to 15.00
New York, deal.	7.00 to 7.25
Pittsburgh	12.50 to 13.00
St. Louis	9.50 to 10.00

PIPE AND FLUES

Cincinnati, deal.	9.00 to 9.50

RAILROAD GRATE BARS

Buffalo	12.25 to 12.75
Chicago, net	11.50 to 12.00
Cincinnati	10.00 to 10.50
Eastern Pa.	12.00 to 12.50
New York, deal.	8.75 to 9.25
St. Louis	12.50 to 13.00

FORGE FLASHINGS

Boston dealers	10.00 to 10.25
Buffalo	13.75 to 14.25
Chicago	10.50 to 11.00
Cleve. over 10 in.	13.25 to 13.50
Detroit	12.25 to 12.75

FORGE SCRAP

Boston, dealers	9.00 to 9.25
Chicago	18.00 to 18.50
Eastern Pa.	14.00

ARCH BARS AND TRANSOMS

Chicago, net	20.50 to 21.00
St. Louis	21.50 to 22.00

Iron, Steel Works Scrap

AXLE TURNINGS

Boston, deal.	6.75 to 7.00
Buffalo	14.25 to 14.75
Chicago	12.50 to 13.00
Cleveland	14.00 to 14.50
Eastern Pa.	14.50 to 15.00
Pittsburgh	15.75 to 16.75
St. Louis	10.00 to 10.50

STEEL CAR AXLES

Birmingham	17.00 to 18.00
Boston, ship point	18.00 to 19.00
Buffalo	19.50 to 20.00
Chicago	18.50 to 19.05
Eastern Pa.	23.00 to 23.50
Pittsburgh	21.50 to 22.00
St. Louis	19.00 to 19.50

SHAFTING

Boston, ship point	14.00 to 14.25
Chicago	17.10 to 17.65
Eastern Pa.	19.00 to 20.00
New York, deal.	14.00 to 14.50
St. Louis	18.50 to 19.00

Iron Foundry Scrap

CAR WHEELS

Birmingham, iron	11.00 to 12.00
Boston, iron	14.00 to 14.50
Buffalo, iron	14.00 to 14.50
Buffalo, steel	19.00 to 19.25
Chicago, iron	13.50 to 14.00
Chi., rolled steel	18.50 to 19.00
Cincinnati	12.50 to 13.00
Eastern Pa. cast.	16.50 to 17.00
Eastern Pa., rolled	20.50 to 21.50
N. Y., iron, deal	12.00 to 12.50
Pittsburgh, iron	16.50 to 17.00
Pittsburgh, steel	21.50 to 22.00
St. Louis, iron	14.25 to 14.75
St. Louis, steel	18.00 to 18.50

No. 1 CAST SCRAP

Birmingham, cup.	13.00 to 14.00
Buffalo	15.75 to 16.00
Boston, textile	14.50 to 15.00
Chicago, mach.	16.25 to 16.80
Chicago, railroad	15.25 to 15.60
Chicago, agri.	14.65 to 15.20
Cincinnati, Mach. cupolas, gross	19.50 to 20.00
Cleveland, cupola	15.75 to 16.25
Detroit, net, deal.	12.00 to 13.00
East Pa., cupola	16.00 to 17.00
N. Y., cup., deal.	12.50 to 13.00
N. Y., del. local foundries	17.00
Pittsburgh, cupola	15.00 to 16.00
San. Fran., del.	13.50 to 14.00
Seattle	14.50 to 14.75
St. L. No. 1 mach.	15.25 to 15.75
St. Louis, No. 1	14.50 to 15.00

HEAVY CAST

Boston	10.50 to 11.00
Buffalo, breakable	12.75 to 13.25
Cleve., breakable	12.50 to 12.75
Detroit, auto, net dealers	12.00 to 13.00
Detroit, break. deal	9.00 to 9.50
Eastern Pa.	15.00
New York, deal.	11.50 to 12.00
Pittsburgh	13.00 to 13.50

MALLEABLE

Boston, railroad	18.50 to 19.00
Buffalo	18.00 to 18.50
Chicago, agri.	15.50 to 16.00
Chicago, railroad	16.50 to 17.00
Cinn., R. R., deal	15.25 to 15.75
Cinn., agri., deal.	14.25 to 14.75
Cleveland, rail.	17.50 to 18.00
Detroit auto deal.	15.25 to 15.75
St. Louis	14.50 to 15.00

Miscellaneous Scrap

RAILS FOR ROLLING
5 feet and over

Birmingham	13.00 to 14.00
Rails, scrap, Boston	11.00 to 12.50
Buffalo	16.50 to 17.00
Chicago	17.50 to 18.00
Eastern Pa.	17.00 to 17.50
New York	12.75 to 13.25
St. Louis	16.75 to 17.25

LOCOMOTIVE TIRES

Chicago, cut	18.50 to 19.00
St. Louis, No. 1	15.00 to 15.50

LOW PHOS. PUNCHINGS

Chicago	16.75 to 17.25
Pittsburgh	20.50 to 21.50

tinue to show strength. Brokers are unable to fill some orders from the Pittsburgh district, as there is scarcity of material. Scrap rails, railroad wrought and yard wrought are a trifle easier, mainly the result of no demand. Forge flashings are also dull.

New York, July 30.—A mixed tendency prevails in scrap dealers' buying prices. One large dealer has advanced his buying prices on mixed borings and turnings for Bethlehem, Pa., 50 cents a ton, making the current spread on that grade $7 to $7.75, New York. On the other hand, there have been downward revisions in specification pipe and No. 1 heavy breakable cast. The latter grade is particularly weak, being off $1 a ton. Consuming demand generally continues quiet. Approximately 3500 tons of miscellaneous scrap is being loaded on ship here for export to Germany.

Buffalo, July 30.—Small lots of No. 1 heavy melting steel continue to be booked at $17.25 for the best grade. Blast furnace scrap is in better demand. Some sales of No. 1 cast have been made. Railroad lists are going elsewhere and production is smaller, dealers claim.

Cleveland, July 30.—Iron and steel scrap is stronger. No. 1 heavy melting steel has advanced 50 cents to $15.50 to $16, Supplies are particularly scarce. Some dealers are said to have been caught short in covering contracts and are reported to have paid as high as $16.50 for select grades. Compressed sheets are also scarce and 50 cents higher at $15.50 to $16. Machine shop turnings have advanced on recent sales, now being quoted 50 cents higher at $9.50 to $10. The leading consumer is taking only a few cars of No. 1 steel this week.

Cincinnati, July 30.—Continued strength of scrap is reflected in further price increases on scrap rails for melting, cast iron borings and No. 2 busheling. While there is no strong buying movement, quiet purchases are being made and consumers are specifying against current contracts at a good rate.

Detroit, July 30.—A strong tone pervades the iron and steel scrap market but prices are not higher except on a few items. Lessened production of automobiles, with strong demand from consumers of scrap, lends strength to the market. Higher prices are expected shortly.

St. Louis, July 30.—Iron and steel scrap continues progressively firmer, with further advances, notably on steel items. Mills are consuming heavily and in many important instances are in need of material, particularly specialties for mixing purposes. General scarcity exists and dealers find difficulty filling orders.

Birmingham, Ala., July 30.—Except for steel sluggishness in the iron and steel scrap market continues. Heavy melting steel is moving well, 21 of the 22 open-hearth furnaces in this district being in operation. Steel is held at $12.50 for best quality with one large consumer paying $10.50 to $11.50, delivered.

Toronto, Ont., July 30.—Spotty demand features new business in iron and steel scrap. Consumers are buying small tonnages of iron grades, the total of which is fairly large. Steel scrap sales have dropped off as mills are out of the market for the present. Prices are firm but unchanged.

Philadelphia, July 30.—Current dealing in iron and steel scrap involves many small and moderate tonnages. No new sales of heavy melting steel have been made but the market appears firm at $16.50, delivered, and recent sales at $17 seem to have brought a premium for early shipment. Not more than 5000 tons have been sold at $17.

Pittsburgh, July 30.—Iron and steel scrap is in a quiet market. Mills show little anxiety for additional supplies. Dealers are well booked with orders and are marking time until buying is resumed. Lists of the Pennsylvania and Baltimore & Ohio railroads, closing next week, may provide some indication of the price trend, with about 14,000 tons of heavy melting steel being offered. Current prices are largely nominal. Heavy melting steel is unchanged at $18.50 to 19 on the basis of last transactions.

Canadian Scrap

Dealers' Buying Prices

MONTREAL

Per Gross Ton

Iron axles	$22.00
Steel axles	20.00
Car wheels	16.00
Stove plate	13.00
Wrought pipe	6.00
Turnings	6.50
Heavy melting steel	8.00

TORONTO

Steel axles	15.00
Iron axles	17.00
Heavy melting steel	9.50
Turnings	7.50
No. 1 mach. cast (net)	16.00
Malleable (net)	12.50

Semifinished Steel

Specifications Heavy—Supplies Larger —Market Firm

SEMIFINISHED STEEL PRICES, PAGE 278

Pittsburgh, July 30.—With the requirements of finishing mills for billets, sheet bars and slabs well adjusted to supplies, there is less urgency in the market for material. Despite this, there is not a large available tonnage since the needs of most producers are absorbing the larger portion of current output. Some semifinished users still have ample supplies to run them into August, and defer making additional commitments. Some sales of small lots of rerolling billets and slabs are noted, with the current $35 price prevailing. Forging billets continue fairly active, the minimum being $40. Specifications against existing contracts continue heavy for all descriptions of semifinished material. Wire rods are firm and active at $42.

Youngstown, O., July 30.—Demand from sheet and strip mills for sheet bars and billets is the feature of the semifinished market here. The flow of material out of producing mills has not diminished. Quotations are firm at $35, Pittsburgh and Youngstown, for sheet bars, billets and slabs, with wire rods at $42, Pittsburgh and Cleveland.

Cleveland, July 30.—Makers of sheet bars, billets and slabs are closer up on shipping schedules, the leading merchant producer here now having its specifications scheduled two weeks ahead. This interest continues operating at full capacity ,with all of its output for third quarter under contract. Few open market inquiries are appearing. Sheet bars, billets and slabs are being shipped out at $35, Cleveland or Youngstown.

Admits Coast Plant Deal

New York, July 30.—Myron C. Taylor, chairman of the finance committee of the United States Steel Corp., has said the following concerning reports that the corporation is acquiring the Columbia Steel Corp., San Francisco:

"We have had conversations with the steel people from the Pacific coast regarding their property, concerning which we are making inquiries, but we have signed no papers."

One report is that the valuation of Columbia Steel Corp. assets is $17 a share on the 2,000,000 authorized shares.

Byers Co. Denies Rumors

Warren, O., July 30.—Continued but unauthorized rumors having been in circulation here that the A. M. Byers Co., maker of wrought iron pipe and skelp, plans also to build sheet mills here, the company has issued complete denial of their truth. Eventually, the activities of the Byers company here will be transferred to Ambridge, Pa., where it is constructing an important series of works. Then the Warren plant will be abandoned by this company, it now being merely under lease for experimental purposes from the former American Puddled Iron Co.

Rusk Stack Turned Back

Texas again finds itself the owner of the blast furnace plant and iron ore properties at Rusk, Tex., which it sold 10 years ago to P. P. Featherstone and associates. Inability of the purchaser to meet the notes given the state in payment caused District Judge Calhoun at Austin, Tex., to enter an order canceling the obligation.

Disclaims Connection

The Nashville Bridge Co., Nashville, Tenn., states that no officers or former officers of the company are interested in the organization of the Knoxville Structural Steel Co., Knoxville, Tenn., as reported in the July 25 issue of IRON TRADE REVIEW.

Bars

Renewed Buying Reduces July Decline—Less Gain in Delivery —Prices Are Firm

SPECIFICATIONS for soft steel bars have shown less decline late in July and the month will show a smaller loss than had been expected. Some renewed buying has come to aid the situation and deliveries are making less gain than in the past fortnight. Two to six weeks is the rule, with prompt tonnages available occasionally in some sizes.

BAR PRICES, PAGE 277

Chicago, July 30.—Another spurt in finished steel sales has added further tonnage to bar and other finishing mill books in the week just closed, but on the whole shipments are making headway against commitments. Unless unusual suspensions occur, actual obligations will carry the mills through September. Specifications show remarkable steadiness, and are moving in a more orderly manner, as fabricators have been given a start on shipments due them. Extra tonnage can be added to rollings now. Incoming orders from implement works are stimulated by completion of midyear inventories. Several tractor concerns are maintaining specifications above what might be expected at this season because of recent export orders. Cold drawn, spring steel, and bolt and nut fabricators and general manufacturing lines are steady bar users. Bar products sales were nearly double those of a week ago, although deliveries are easier at four to six weeks. July specifications apparently have set a record for that month in this district, while it is indicated ingot production for the month also may set a new July mark.

Soft steel bars are 2.05c to 2.15c, the latter being nominal, considering the nature of current business. Alloy steel bar prices are unchanged.

New York, July 30.—Quotations on steel bars are firm at 1.95c, Pittsburgh, with the more common specifications available within three weeks to a month. On some specifications, however, deliveries are much further extended, two months being offered in some cases.

Philadelphia, July 30.—Demand for steel bars continues comparatively quiet and some mills for the first time in many months now are actively soliciting tonnages. Prices continue firm at 1.95c to 2.00c, base, Pittsburgh.

Pittsburgh, July 30.—The decline noted in specifications for hot-rolled merchant bars earlier this month has tapered recently with the result that total business will show less decline from the June volume than had been anticipated. Some mills that had practically cleaned up backlogs on some sizes now have a fair tonnage on books, and operations are more uniform. Delivery still varies from two to four weeks, according to size. Specifications so far this month are in excess of the total volume for July, 1928, even though some slight decline is expected to be shown compared with June of this year. Specifications from cold bar finishers are off markedly although a steady demand is coming from a diversified list of other consumers. The market is firm at 1.95c, Pittsburgh.

Cleveland, July 30.—For some makers soft steel bar demand is continuing to improve, and new business in July approximates that of June. Some automotive consumers have stepped up specifications for new models. Bolt, nut and rivet needs, while seasonally high, are more quiet than some other lines. Implement makers soon will start on their fall runs. Local mills ask 1.90c, Cleveland, and outside mills 1.95c, delivered Cleveland.

Says Pig Iron Rate Fair

Washington, July 30.—Lewis L. Prout, examiner of the interstate commerce commission, in a proposed decision prepared for the commission found that the rates on pig iron, in carloads, from Hubbard, O., and certain other points in the Mahoning and Shenango valleys to Latrobe, Pa., are not unreasonable. He recommends that the complaint, filed by the Vulcan Mold & Iron Co. against the Pennsylvania railroad, be dismissed.

Production of steel plates in Japan during first quarter of 1929 was 77,602 tons, compared with 83,691 tons in first quarter of 1928.

Plates

Specifications Up to Recent Levels in Middle West, Declining Slightly Elsewhere

WHILE plate specifications show a tendency to decline in some districts, in the Middle West they are fully equal to the recent average and well diversified. Substantial tonnages were added to Chicago district mill books during the past week. About 35 to 40 per cent of new finished steel business at Chicago is represented by plate orders.

PLATE PRICES, PAGE 277

Pittsburgh, July 30.—Specifications for plates show little decrease compared with the rate earlier this month and gains are shown in some directions compared with June. Current demand reflects largely heavy awards earlier this year for freight cars, pipe lines and barges. Completion of this work is not expected before the end of this quarter, insuring a further steady volume of plate business. There is a fairly steady volume of small orders for miscellaneous purposes. The market continues generally 1.95c, Pittsburgh. The Basic Barge Line has placed 20 coal barges, involving 2000 tons of plates and shapes, with Dravo Contracting Co.

Buffalo, July 30.—Sun Oil Co. will buy a large tonnage of plates for construction of 20 storage tanks at its new plant in the River road section of Buffalo. Bids will be received and construction will start immediately, preliminary work being underway.

New York, Juiy 30.—Chicago Bridge & Iron Works has booked 700 tons of plates for a penstock for the Connecticut River Power Co., for erection in Vermont, but new tank and pipe work is lacking. Miscellaneous buyin continues good for this season, although deliveries are slightly easier at about three to five weeks. Prices are unchanged at 1.95c to 2.05c, Pittsburgh, or 2.05c to 2.15c, Coatesville.

Much interest is centered in bids to be opened Aug. 1 by the Lackawanna railroad on 1250 freight cars, to take a tonnage of plates. The Reading railroad opened bids recently on 200 freight cars, but no action has been taken. The New Jersey Central may defer action on bids on 250 mill gondolas, possibly taking new bids. The board of water supply, Detroit, will open bids July 31 on 1200 tons of steel pipe made of plates.

Cleveland, July 30.—Instead of falling off, new plate business of a miscellaneous character appears to be more accelerated. A local producer has three weeks work on its books, and the volume of incoming orders is larger than shipments. Among recent awards here is 1000 tons for tank work. Prices are firm at 1.95c, base, Pittsburgh.

Philadelphia, July 30.—Plate demand is not as active as in recent weeks, but eastern mills continue operating

full. Some Pittsburgh district producers are so filled with orders they are not soliciting tonnage. Prices are firm.

Spear Engineering Co., Norfolk, Va., is low bidder on a government boat for which 350 tons of steel is required, mainly plates.

Chicago, July 30.—More tonnage has been added to mill books with the spurt in sales the past week. Heavy pipe bookings recently by the Milwaukee fabricator of electric welded pipe will not be entered on mill books here for several weeks. Specifications are up to recent averages and are well diversified. Little fresh business is coming from the oil territory, although it is estimated potential tank inquiry is close to 10,000 tons. Prairie Pipe Line Co. has surveyed for a 40-mile pipe line in Western Kansas. Mill rollings are sufficiently flexible now to permit extra tonnages to be added. Deliveries average six to eight weeks, although one producer, now scheduling rollings for the week of Aug. 4, can promise earlier shipments in some sizes. About 35 to 40 per cent of new business in the finished steel group of products was in plates. Plate mills are close to capacity operations. Plate prices are named from the 2.05c, Chicago, base.

CONTRACTS PLACED

2000 tons, plates and shapes, 20 coal barges for Basic Barge Line, Pittsburgh, to Dravo Contracting Co.

700 tons, penstock, Connecticut River Power Co., for erection in Vermont, to Chicago Bridge & Iron Works.

475 tons for pontoons, pipes and cylinders for export, to Riter-Conley Co., Pittsburgh.

150 tons, sulphite digester for Rainier Pulp & Paper Co., Shelton, Wash., to Willamette Iron & Steel Works.

100 tons, 54-inch riveted pipe, East Bay Municipal Utility District, Oakland, Calif., to unstated interest.

CONTRACTS PENDING

1200 tons, for pipe for board of water supply, Detroit. Bids July 31.

To Improve Ore Harbors

Washington, July 30.—Improvements to the Great Lakes iron ore harbors of Duluth and Superior, Wis., have been recommended to the secretary of war by Maj. Gen. Edgar Jadwin, chief of engineers. The sum of $109,000 has been set aside for this purpose from the unallotted balance of the appropriations for river and harbor work for the fiscal year 1930. Originally $45,000 had been allotted for this purpose, but severe storms in the spring caused considerable damage to the south breakwater, to be repaired without delay. Too much shoaling also has taken place within the Duluth harbor basin and in the northern portion of the Superior basin additional to that to be removed by the original appropriation.

Pipe

Moderate Tonnage in Current Lettings — Steady Volume Is Maintained in Small Orders

BOSTON has divided 2000 tons between two producers and Chicago has opened bids on 1600 tons close to the market. Mills have good backlogs of line pipe from preceding orders and are in comfortable position. Oil country demand is fair but not unusual. An inquiry for 1000 tons for a New York utility is noted. Production is unchanged.

PIPE PRICES, PAGE 278

Pittsburgh, July 30.—Business in seamless and welded pipe shows little change from the rate 30 days ago. Merchant pipe demand which was adversely affected early this year by light activity in building, has been moving steadily for some time and little recession is noted recently. The oil country has been taking a fair tonnage of tubular material although activity in that direction is not pronounced. The sharp increase in awards of line pipe so far this year has provided mills with substantial backlogs of larger sizes of welded material and considerable work remains to be placed. No developments are heard, however, on pending lines. Locomotive and boiler tubing demand is slower than the rate 60 days ago, while specifications for mechanical tubing also are less active, largely accounted for by the downward trend in automobile production. Pipe mill operations are unchanged.

Boston, July 30.—Boston Consolidated Gas Co. has divided 2000 tons of 6 to 24-inch pipe between two northern foundries, while Westfield, Mass., awarded 100 tons of 6 and 8-inch pipe to Warren Foundry & Pipe Co. Private business continues in good volume. Prices are firm.

New York, July 30.—Lapweld pipe deliveries continue extended, with leading producers booked into September and October. Recent inquiries include 1000 tons for the Central Hudson Gas & Electric Co. Buttweld pipe demand is spotty, with deliveries available within a week to 10 days.

Cleveland, July 30.—Good demand for merchant pipe for the jobbing trade is noted here. Mills are fairly well filled with orders for line pipe. Miscellaneous business continues in good volume, without any large outstanding orders. Prices are steady.

Chicago, July 30.—Bids on 1600 tons of 4 to 8-inch pipe for Chicago waterworks department disclosed quotations in line with the recent market level. Glamorgan Pipe & Foundry Co. was low on all sizes with a bid figuring to slightly under $37, base, Birmingham. The Hinsdale, Ill., sewage treatment works, for which bids were received yesterday, will require only about 200 tons in odd sizes of water pipe. Private buying is in small volume. Several contract orders in the Chicago territory for 25 to 150 tons have been closed recently.

Birmingham, Ala., July 30.—Production of cast iron pipe, centrifugal pipe in particular, is steady, and shipments are active. Pipe production is above 80 per cent of capacity.

CONTRACTS PLACED

2173 tons, East Bay Municipal Utility district, Oakland, Calif., to United States Pipe & Foundry Co.

2000 tons, Boston Consolidated Gas Co., 6 to 24-inch, split between two northern foundries.

852 tons, Pasadena, Calif., 75 tons to Pacific States Cast Iron Pipe Co. and 777 tons to United States Pipe & Foundry Co.

300 tons, two Seattle local improvement projects, to American Cast Iron Pipe Co.

185 tons, improvement of Broadway, Santa Monica, Calif., to Griffith Co.

100 tons, Westfield, Mass., 6 and 8-inch pipe, awarded to Warren Pipe & Foundry Co.

CONTRACTS PENDING

1600 tons, 4 to 8-inch pipe for Chicago. Glamorgan Pipe & Foundry Co. low at about $45.20, delivered.

200 tons, miscellaneous sizes of water pipe for Hinsdale, Ill., sewage treatment works; bids July 29.

Three Companies Sought by Blaw-Knox

Pittsburgh, July 30.—Blaw-Knox Co., Blawnox, Pa., has made plans for acquisition of Union Steel Casting Co., Pittsburgh, Lewis Foundry & Machine Co., Pittsburgh, and National Alloy Steel Co., Blawnox, contingent upon deposit of sufficient stock of each company to give Blaw-Knox control. In the event of acquisition, however, each organization will retain its corporate identity. The basis for exchange of stock is not announced except in the case of Union Steel Casting Co., stock of which will be exchanged in the ratio of ⅞ share of Blaw-Knox for one share of Union Steel Casting.

Union Steel Casting Co., controlling the entire capital stock of Pittsburgh Rolls Corp., has an annual capacity of 36,000 net tons. Lewis Foundry & Machine Co. makes rolls and rolling mill machinery.

Albert C. Lehman is president of Blaw-Knox Co. and chairman of National Alloy Steel Co. Blaw-Knox Co., which produces water-cooled equipment for steel plants, clamshell

buckets, steel grating, air preheaters, and also does steel fabricating work, reports its earnings only on an annual basis but Mr. Lehman states profits are running substantially ahead of the rate of a year ago.

Tin Plate

Operations Higher Than Usual Seasonal Rate—Market Active

TIN PLATE PRICES, PAGE 278

Pittsburgh, July 30.—Occasional orders for prompt delivery of small lots of tin plate represent the only pressure mills are encountering for rush shipment. The steady run of new business, coupled with a good volume of old orders, however, is holding operations at better than the usual seasonal level. Backlogs are not extensive. Scheduled operations of leading tin plate producers are between 95 and 100 per cent, although actual operations recently have been lowered to between 90 and 95 per cent by unfavorable weather. The market continues $5.35 per 100-pound base box, Pittsburgh.

Hear Tariff Rise in Pig Iron, Manganese

Washington, July 30.—A well defined rumor is that the senate finance committee has voted to continue the present 1 cent per pound duty on manganese ore but, partially to meet the demands of domestic producers, the committee has made this duty applicable on ore having a content of 10 per cent or over instead of 30 per cent or over.

A report also is current that the pig iron rate will be raised from $1.12½ per ton, as in the house bill, to $1.50.

Members of the finance committee will not make any statements concerning rates. The committee today was to conclude its work on the metal schedule.

It still is doubtful that the finance committee will be able to report the bill back to the senate when the latter convenes Aug. 19. Some delay is being encountered on sugar rates. Following a conference with President Hoover recently, Senator Reed Smoot, chairman of the finance committee, has said that "the President never has discussed rates with me."

Made Treasurer of Budd

C. W. Messinger, for some years purchasing agent for the Edward G. Budd Mfg. Co., Philadelphia, has been elected treasurer of that company.

Czechoslovakia's export quota in the European steel entente has been increased from 127,000 tons to 135,600 tons for third quarter and from 508,000 to 542,400 tons annually. This country and Germany figure in the entente on an export basis rather than on total production.

Sheets

July Orders, Shipments Show Reduction From June—Black, Galvanized Sheet Prices Easier

THE impetus gained in the sheet market some weeks ago is carrying mills along with substantial backlogs, but new business shows a tendency to decrease. July orders and shipments are below those of June for the leading producers. Black sheets are most generally priced now at 2.85c, base, Pittsburgh, and galvanized at 3.60c. On other grades prices are steady.

SHEET PRICES, PAGE 277

Youngstown, O., July 30.—Hot weather has cut sheet production. July appears certain, however, to make a new high record in tonnage production of all flat-rolled products. Sheet mills have been noting a quiet period as to new sales, but the volume of specified business still on mill books is so large as to assure maximum production of black, blue annealed and autobody sheets for periods ranging from three to eight weeks. Quotations appear to be settling to 2.85c, Pittsburgh, for common black sheets, though large tonnages still are to be delivered at 2.95c. Outside competitors are said to be naming as low as 3.35c on galvanized, but Valley mills hold to 3.65c. Blue annealed demand is good and prices steady, while autobody makers continue to get 4.10c.

New York, July 30.—Sheet mills continue with substantial bookings. On black, five to six weeks appears a reasonable average for shipment, and on galvanized five to seven weeks. The latter appears to be holding at 3.60c, Pittsburgh, with preferential business quoted at less. Black sheets are 2.85c to 2.95c, Pittsburgh, with the lower figure more representative. Blue annealed plates are steady at the 2.20c, base, Pittsburgh, and blue annealed sheets at 2.35c, Pittsburgh.

Buffalo, July 30.—Automobile manufacturers are holding down sheet orders. Mills have good unfilled tonnage on hand. Current quotations are 3.215c, Buffalo, for black, and 4.365c for galvanized.

Cleveland, July 30.—Sheet mill backlogs are diminishing slowly due to inflow of an unusually large volume of miscellaneous business for this season. New orders the past week were smaller in volume than in the week preceding. Some mills can give fairly prompt delivery on ordinary grades, while others are filled from three to four weeks on black and galvanized and 10 to 12 weeks on blue annealed. One producer reports having a larger backlog today than a month ago. The majority look forward to good business the remainder of the second half. Black sheets are easier at 2.85c to 2.95c, base, Pittsburgh, while galvanized sheets are 3.60c to 3.70c. Blue annealed and autobody are firm.

Cincinnati, July 30.—New business of district sheet mills the past week was about equal to the preceding week. Deliveries are easier than a month ago. Several automobile manufacturers are specifying sheets for new models.

Chicago, July 30.—Difficulty is encountered in sheet mill schedules in this district because of continued shortages in sheet bars. Hot weather also has helped make operations irregular. The operating rate is about 80 to 85 per cent for the district. Backlogs on all grades are being extended steadily. Blue annealed deliveries are 12 to 15 weeks, while four to six weeks is named for black and galvanized sheets. Price weaknesses in the South and Southwest are said to be confined entirely to the lighter gages of galvanized roofing quality sheets. Mill quotations in this market are 3.05c for No. 24 black, 3.80c for No. 24 galvanized, and 2.45c for No. 13 blue annealed sheets, while blue annealed plates are 2.30c, base.

St. Louis, July 30.—Reports of producers and distributors of sheets in this district reflect generally satisfactory conditions. Prices are firm.

Pittsburgh, July 30.—Incoming business in sheets is expected to total less this month than for June, while shipments also are slightly below the June rate, but the letdown is not regarded as in excess of the dropping off usually expected for this month. Specifications and business show surprising vitality and are well distributed over various consuming lines. There is little change in the rate of demand from automotive interests, although total business is heavy for this period, and sellers look for increased activity during August. Prices continue weak on black and galvanized compared with quotations 30 to 60 days ago. The 3.70c, Pittsburgh, price on galvanized has disappeared as also has the 2.95c figure on black sheets. Galvanized generally is 3.60c, with 3.50c quoted in instances on sales to jobbers. The black sheet market generally is held at 2.85c.

Philadelphia, July 30.—Sheet demand continues good and mills generally are able to maintain steady operations. Blue annealed prices are steady, except on occasional attractive tonnages. Ordinary one-pass black sheets are 2.85c, base, Pittsburgh, although on the more highly finished grades concessions sometimes are allowed. Galvanized sheets are selling at 3.50c to 3.60c, Pittsburgh.

Structural Shapes

Pending Tonnages Maintain Outlook for Continued High Activity—Leading Awards of Week Include 7000 Tons for Chicago

STRUCTURAL steel inquiry continues to accumulate. New York has added 14,000 tons of bridgework to its pending list. New building projects in the Chicago district will require 13,000 tons of shapes. Subway work in New York is slow in materializing, one 10,000-ton section being delayed. Chicago mills booked 7000 tons of shapes for railroad bridgework. Transmission towers in Tennessee took 4000 tons and a New Jersey insurance building 3800 tons.

Large awards were not numerous in the past week, but the tonnage in the aggregate was not out of line seasonally. Prices remain steady with few spots of weakness uncovered, Pittsburgh being 1.90c to 1.95c, Chicago, 2.05c to 2.15c; and Philadelphia 1.95c to 2.05c, eastern mill.

STRUCTURAL SHAPE PRICES, PAGE 277

New York, July 30.—Demand for structural steel continues heavy, with few signs of the usual seasonal decline. Pending tonnage includes 14,000 tons for two bridges over Hackensack river, New Jersey, on which early action is expected. Phoenix Brige Co. was low on the steel. Hedden Iron Construction Co. was awarded 3800 tons for American Insurance Co. building at Newark, N. J. Steel for the Pratt & Whitney addition at East Hartford, Conn., 2500 tons, will be supplied by Levering & Garrigues Co. A large tonnage of subway work continues pending, one section award being held up, involving close to 10,000 tons.

Boston, July 30.—About 1000 tons comprised structural steel awards the past week and another 1000 tons is pending. For the roundhouse to be erected in the Brighton district for the Boston & Albany railroad 650 tons was placed with an unnamed fabricator. Three bridges for the Boston & Maine at Lansonberg, N. Y., were awarded to Boston Bridge Works. Reconstruction of Congress street bridge, this city, for the city calls for 1000 tons.

Philadelphia, July 30.—Structural shape demand is somewhat slower but this may be temporary as good prospects are ahead. Eastern structural mills continue to operate at capacity. Prices usually are 1.95c to 2.05c, base eastern mill, on standard shapes although lower is done occasionally on attractive tonnages.

Pittsburgh, July 30.—Fabricated structural steel awards are fairly heavy from points outside this district, although there is little activity in nearby territory. Specifications to mills, however, are seasonally heavy and July tonnage is expected to compare favorably with June. Competition on fabricated work continues to exert pressure on prices, but the market for plain material is fairly well maintained with 1.95c, Pittsburgh, generally quoted.

Cleveland, July 30.—Shape specifications are fairly active, and the price is steady at 1.95c, base, Pittsburgh, for the usual run of small and moderate size orders. Bids will be received this week for the new jail and courthouse for Cuyahoga county, requiring approximately 1000 tons of shapes. Several highway bridges near Buffalo took an aggregate of 200 tons.

Chicago, July 30.—Railroad car and bridge work is an important feature in the structural market. Mills have booked about 7000 tons of railroad bridge work and 12,000 to 18,000 tons is reported active in eastern markets. Car shop specifications for light structural material continue heavy. A number of building projects are pending and fresh projects total 13,000 tons. A Chicago school building calls for 2200 tons. Much activity is in prospect the next few months in Milwaukee territory. Two property owners near the site of the proposed Cuneo Tower in Chicago have filed a protest to the zoning board of appeals, which may delay progress. Mill deliveries on shapes are four to six weeks. Plain material is 2.05c to 2.15c, Chicago, but the 2.15c quotation is generally regarded as nominal.

CONTRACTS PLACED

7000 tons, bridge work for several railroads, placed at Chicago directly with mills.
4000 tons, transmission towers, Memphis, Tenn., to Nashville Bridge Co.
3800 tons, American Insurance Co. building, Newark, N. J., to Hedden Iron Construction Co.
2800 tons, hangars, city airport, Detroit, to Whitehead & Kales Co.
2500 tons (previously estimated 3000 tons) factory building, Pratt & Whitney, East Hartford, Conn., to Levering & Garrigues Co.
2000 tons, two bridges in Indiana for Big Four railroad; to American Bridge Co.
1900 tons, building for Western Electric Co., Baltimore, to Belmont Iron Works.
1800 tons, Nix building, San Antonio, Tex., to Orange Car & Steel Co.
1500 tons, passenger station, Union Pacific railroad at Omaha, Neb., to Milwaukee Bridge Co.
1500 tons, Legault bridge, Montreal, Que., to Dominion Bridge Co.
1200 tons, Burnham avenue viaduct, Chicago, to McClintic-Marshall Co.
1050 tons, high school, Trenton, N. J., to American Bridge Co.
1,000 tons, building for Detroit Steel Products Co., Detroit, to Russel Steel Construction Co.
900 tons, office building, Tenth and Washington streets, Portland, Oreg., to Poole & McGonigle.
800 tons, West Town State Bank building, Chicago, to Midland Structural Steel Co., previously reported to unstated fabricator.
700 tons, building for Edison Electric Appliance Co., Chicago, to unstated fabricator.
650 tons, roundhouse for Boston & Albany railroad in Brighton district, Boston, to unnamed fabricator.
600 tons, warehouse and garage, Detroit, for Michigan Bell Telephone Co., to Russel Steel Construction Co.
500 tons, hotel, Post near Jones street, San Francisco, to McClintic-Marshall Co.
470 tons, nurses' home, St. Mark's hospital, New York, to Hinkle Iron Co.
350 tons, three bridges for Boston & Maine railroad at Lansonberg, N. Y., to Boston Bridge Works.
350 tons, theater, Muskegon, Mich., to Massillon Bridge & Structural Co.
250 tons, bridge, Seaboard Air Line railroad, Hopewell, Va., to unstated fabricator.
250 tons, building for Continental Can Co., Chicago, to New City Iron Works Previously reported at 200 tons to unstated fabricator.
240 tons, bridge work for Chicago & Alton railroad, to American Bridge Co.
200 tons, building for Florence Foundry & Machine Co., Florence, N. J., to Belmont Iron Works.
200 tons, building, Lafayette College, Easton, Pa., to Lehigh Structural Steel Co.
200 tons, factory, Huntington Park, Calif., to Consolidated Steel Corp.
200 tons, state highway bridges, Montgomery, Ala., to Nashville Bridge Co.
200 tons, bridge work for Union Pacific railroad, to McClintic-Marshall Co.
190 tons, telephone building, Monticello, N. Y., to unstated fabricator.
175 tons, New York State bridge, to American Bridge Co.
150 tons, highway bridge, Belvidere, N. J., to Bethlehem Fabricators Inc.
130 tons, garage and stock building, Edison Co., Hyde Park, Mass., to McClintic-Marshall Co.
125 tons, bridge over Tombigbee river, Aberdeen, Miss., to Nashville Bridge Co.
125 tons, highway bridge, Jamaica, Vt., to American Bridge Co.
100 tons, plant, Pittsburgh Silica Sand Co., Everett, Pa., to Rush Engineering Co.
100 tons, telephone building, Pomona, Calif., to McClintic-Marshall Co.
100 tons, Orpheum theater alterations, San Francisco, to Western Iron Works.

Awards Compared

	Tons
Awards this week	37,805
Awards last week	32,223
Awards two weeks ago	34,457
Awards this week in 1928	44,730
Average weekly awards, 1928	39,082
Average weekly awards, 1929	41,595
Average weekly awards, July	34,526
Total awards to date, 1928	1,198,862
Total awards to date, 1929	1,289,451

CONTRACTS PENDING

14,000 tons, two Pennsylvania bridges across Hackensack river, N. J.; Phoenix Bridge Co., low bidder.
8000 tons, McKinley bridge, St. Louis.
4000 tons, farm bureau building, Harrisburg, Pa.
2550 tons, pier 3, department of docks, New

York; Lane Construction Co. low on general contract.
2500 tons, Pennsylvania railroad bridge, Oil City, Pa.; bids to be asked shortly.
2200 tons, school building, Chicago.
2200 tons, mill building for a copper company in Arizona.
2000 tons, Atwater-Kent Mfg. Co. building, Philadelphia.
1500 tons, Los Angeles Stock Exchange building, Los Angeles. Bids about Sept. 1.
1000 tons, reconstruction of Congress street bridge, Boston.
1000 tons, jail and courthouse, Cuyahoga county, O. Bids this week.
900 tons, power plant for Western Electric Co., Baltimore; in addition to contract just placed.
650 tons, bank building, Stamford, Conn.
600 tons, telephone building, Elizabeth, N. J.
600 tons, bridgework in Indiana; bids by State Highway commission, July 30.
600 tons, power house, Lansing, Mich.
500 tons, printing plant, J. B. Lyon Co., Albany, N. Y.; bids in.
400 tons, addition, passenger terminal, New York Central railroad, Buffalo; contract to be awarded by builder this week.
400 tons, addition to Crane Co. plant, Chicago.
400 tons, bridgework for Chicago, Milwaukee, St. Paul & Pacific railroad.
250 tons, state highway bridge, Princeton, Wis.; C. R. Meyer & Sons Co., Oshkosh, Wis., awarded general contract; steel to be sublet.
200 tons, building, New Departure Mfg. Co., Bristol, Conn.
110 tons, state highway bridge, Newburg, Wis.; Wisconsin Bridge & Iron Co. low bidder.
105 tons, bridge over Nehalem river, Portland, Oreg. Bids received.
Unstated tonnage, Emergency hospital, Milwaukee.
Unstated tonnage, addition to Maurice L. Rothchild store, Chicago.

June Plate Orders Drop

Washington, July 30.—Although orders for fabricated plates for June show a slight decline from May, they are much higher than June, 1928. Comparing the six months' total with the same period last year a substantial increase is shown, according to the department of commerce table, which follows:

	Total	Oil storage tanks	Gas holders	Blast furnaces	Stacks and miscellaneous
1928					
June	35,202	12,204	3,225	778	15,803
Total 6 mos.	260,483	111,010	20,261	3,666	97,351
July	35,959	16,881	1,848	499	12,159
Aug.	47,245	24,807	1,814	429	17,579
Sept.	40,281	18,572	1,642	386	13,976
Oct.	53,983	23,960	1,861	2,435	17,480
Nov.	54,277	32,381	2,081	563	10,731
Dec.	36,254	14,217	2,216	655	12,060
(Year)	528,482	241,828	31,723	8,633	181,336
1929					
Jan.	32,705	11,055	2,018	325	11,567
Feb.	58,684	16,093	6,356	95	18,468
March	57,869	22,045	5,656	631	15,274
April	40,675	9,984	2,483	2,462	23,167
May	*47,763	10,087	5,300	1,245	*26,118
June	45,893	6,890	5,444	1,003	26,125
Total 6 mos.	283,589	76,154	27,257	5,761	120,719

*Revised.

Barrel Output Declines

Cleveland, July 30.—Barrels shipped by members of the Steel Barrel Manufacturers' institute, Cleveland, in June numbered 556,623, compared with 663,031 in May. Unfilled orders as of July 1 numbered 681,043, against 508,771 on June 1. June production of all classifications was 51.5 per cent of capacity.

Twenty-one plants were engaged in production of fuel briquets in the United States in 1928.

Concrete Bars

Dullness Continues Unmitigated but New Projects Promise Early Revival

SUMMER dullness is broken by occasional large tonnage lettings in the concrete bar market. Small-tonnage buying is more in evidence. Inquiry continues to appear in good quantity indicating a more active fall. Prices generally are firm, with shading still in evidence in Chicago. A 1000-ton contract headed the week's buying.

REINFORCING BAR PRICES, PAGE 277

Chicago, July 30.—Autumn building work involving reinforcing bar tonnage is being planned on a fairly extensive scale. Some pending road work will be awarded in the next 60 days and several projects in Iowa, Illinois and Wisconsin have been closed. About 1000 tons has been awarded for Peoria, Ill., sewage treatment works. Two school projects also are up in Chicago. Several fabricators are participating in 800 tons of track elevation work in Evanston, Ill., for Chicago, Milwaukee, St. Paul & Pacific railroad. A South Chicago garden apartment project, to reclaim tenement districts, similar to the recent Marshall Field and Rosenwald projects, will require several hundred tons. Public works show a fair increase in general contracts let. Fabricators' bids reveal further shading of the 2.40c price for billet reinforcing bars.

Boston, July 30.—The 200 tons of concrete bars for dormitories of Harvard university, at Cambridge, Mass., was placed with Colman Steel Co. Otherwise some 200 tons in odd lots was placed. Considerable small tonnage is scheduled for coming weeks.

Buffalo, July 30.—It is estimated 3000 tons of reinforcing bars will be required for the new 5,000,000-bushel grain elevator to be erected near Prescott, Ont., by a syndicate of Canadians. Work will start this autumn with contracts calling for completion of the elevator in the summer of 1930. Contract for the bars probably will go to a Canadian producer, it is anticipated here. New local inquiry includes 175 tons for a grade crossing project and 100 tons for foundation for the New York state office building. Prices are fairly firm.

Pittsburgh, July 30.—Specifications to mills for concrete reinforcing bars are heavy and little decrease is expected in the total July tonnage compared with June. Mills have fair backlogs and have difficulty in effecting desired shipment in certain instances. The market is quiet in large awards and although inquiry is slow, a fair volume is pending. The market is steady at 2.30c, Pittsburgh, for cut lengths and 2.05c for stock lengths.

Cleveland, July 30.—Demand for reinforcing bars is quieter than in recent weeks, while prices are steady. The largest award of the week was 800 tons for the Cleveland Electric Illuminating Co., Ashtabula, O., with the Bourne-Fuller Co., Cleveland.

Awards Compared

	Tons
Awards this week	7,378
Awards last week	6,297
Awards two weeks ago	4,545
Awards this week in 1928	9,070
Average weekly awards, 1928	6,189
Average weekly awards, 1929	6,383
Average weekly awards, July	5,435
Total awards to date, 1928	220,059
Total awards to date, 1929	197,870

CONTRACTS PLACED

1000 tons, power house, Northern Indiana Public Service Co., Michigan City, Ind., to American System of Reinforcing, previously reported to unstated fabricator.
1000 tons, sewage treatment works at Peoria, Ill., to American System of Reinforcing.
800 tons, power plant at Ashtabula, O., for Cleveland Electric Illuminating Co., Cleveland, to Bourne-Fuller Co.
800 tons, grade separation work for Chicago, Milwaukee, St. Paul & Pacific railroad at Evanston, Ill., to five fabricators.
800 tons, sewage disposal plant, Grand Rapids, Mich., to unstated fabricator.
500 tons, filtration plant, Cedar Rapids, Iowa, to Laclede Steel Co.
500 tons, grade separation, Grand Trunk railroad, Pontiac, Mich., to Jones & Laughlin Steel Corp.
450 tons, office and warehouse, Orleans and Huron streets, Chicago, to Concrete Steel Co.
350 tons, building for Hardware Mutual Insurance Co., Stevens Point, Wis., to Concrete Engineering Co.
300 tons, office building Third street, Santa Monica, Calif., to unstated interest.
300 tons, warehouse, Peoples Drug Store Co., Washington, Pa., to Rush Engineering Co.
300 tons, store building for Montgomery, Ward & Co., Des Moines, Iowa, to Sheffield Steel Corp.
208 tons, paving in Alameda county, Sacramento, Calif., to unstated interest.
200 tons, plant additions, Westinghouse Lamp Works, Bloomfield, N. J., to Truscon Steel Co.
200 tons, dormitories, Harvard university, Cambridge, Mass., to Colman Steel Co.
200 tons, plant building, General Fireproofing Co., Youngstown, O., to Rush Engineering Co.
140 tons, addition, City hospital, Cleveland, to Bourne-Fuller Co.
130 tons, three schools, Euclid Village, Olmsted Falls, and unstated location near Cleveland, to Bourne-Fuller Co.
100 tons, building, Lafayette College, Easton, Pa., to Carroll-McCreary & Co. Inc.
100 tons, for county bridges, Buffalo, to a Buffalo fabricator.

100 tons, East Fifty-fifth street bridge, Cleveland, to Bourne-Fuller Co.

CONTRACTS PENDING

3000 tons, (estimated), for grain elevator at Prescott, Ont.; work to begin this autumn, bids soon.
500 tons, Ohio Savings & Trust Co. building, Toledo, O.; bids Aug. 5.
500 tons, Brookside park bridge, Cleveland. Plans approved.
300 tons, opera house foundations, San Francisco. Postponed indefinitely.
300 tons, addition, Richman Bros. Co., Cleveland. Bids in.
200 tons, Gateway theater, Chicago; C. W. Rapp, architect.
175 tons, for Harlem avenue crossing, Buffalo; bids soon.
130 tons, Pennsylvania railroad bridge substructure, Oil City, Pa.; general contract awarded to Ferguson & Edmondson Co., Pittsburgh.
100 tons, New York state office building foundation, Buffalo; bids soon.
100 tons, Christian Science church, Cleveland; general contract to Crowell-Little Construction Co.

Iron Ore

Shipments Continue Heavy, But July Fails to Establish Record

IRON ORE PRICES, PAGE 278

Cleveland, July 30—Lake Superior iron ore shipments by vessel estimated at 10,562,000 tons for July failed to establish a record for that month, after April, May and June set new high marks for the respective months. The July total was exceeded in 1918, with 10,659,000 tons. The estimate for July is based on 8,860,000 tons actual shipments to July 26. The market is quiet, producers devoting all their attention to filling large contract requirements for the season.

Furniture Orders Low

Washington, July 30.—June orders and shipments for steel furniture were the lowest of any month this year. Comparing the figures for the first half of the year with the same period of 1928 a small decline is shown in shipments. Department of commerce comparisons follow:

	Business Group		Shelving	
	Orders received	Shipments	Orders received	Shipments
	(In Dollars)			
1928				
June	2,764,085	3,009,229	737,060	720,253
Total, 6 mos.	18,592,422	18,078,708	4,561,795	4,399,215
July	2,594,216	2,515,482	713,330	722,516
Aug.	2,619,234	2,564,638	863,422	836,105
Sept.	2,689,009	2,754,135	799,850	678,422
Oct.	3,192,927	3,158,998	958,726	953,804
Nov.	2,675,664	2,854,312	875,354	915,640
Dec.	3,610,645	3,117,139	828,555	791,376
Total, 1928	35,974,117	35,043,412	9,601,032	9,297,078
Jan.	3,892,651	3,614,961	1,099,575	901,970
Feb.	3,060,290	3,242,581	919,557	974,305
March	2,883,716	2,923,363	1,145,632	1,109,876
April	2,880,395	2,844,938	1,095,329	1,131,362
May	2,814,423	2,783,992	1,120,990	989,120
June	2,530,723	2,584,539	949,553	910,534
Total 6 mos.	18,062,198	17,994,374	6,330,636	6,017,167

Rails, Cars

Domestic Freight Car Orders Decline—Western Roads Place 1500 Tons of Rails

JULY was the lightest month of the year for domestic freight car orders, following substantial buying at the close of June, according to preliminary estimates. More industrial activity is noted in car equipment orders at Chicago. Track accessory orders there totaled 3000 to 3500 tons during the week. The New Haven & Hartford is inquiring for 5000 to 6000 tons of tie plates.

RAILROAD TRACK PRICES, PAGE 278

Chicago, July 30.—Several miscellaneous orders for steel rails from western roads totaled about 1500 tons during the past week. The expected Northern Pacific inquiry for about 15,000 tons has not been formally issued. Several individual lots of light rails were unusual in tonnage, three orders totaling about 500 tons. This does not reflect heavier buying activity from coal mine interests, as part of the tonnage closed came from copper producers. Rail mill operations are about 70 to 75 per cent.

Track accessory orders were a feature of the railroad market in the past week, bookings totaling 7000 to 7500 tons. Weekly averages of track fastenings sales for several months have been 3000 to 3500 tons. Weakness in the $43 price for tie plates is being reported from St. Louis territory.

It is understood the Great Northern inquiry for 300 flat cars may not be placed if that carrier decides to buy 300 flat car underframes instead. Industrial activity in car equipment is reported. Mills report active specifications from the car companies, but one finished steel producer's specification receipts from car builders on orders being filled are nearly completed. Car building works have had difficulty in building up competent working personnel in this district this season, it is reported.

New York, July 30.—Present indications point to July as the lightest month so far this year in domestic freight car orders placed. Following substantial buying around the close of June, demand fell off sharply until at no time was there more than 2400 or 2500 freight cars pending, and the majority were for eastern roads. Of unusual interest is the list of 7500 box cars and other substantial items for the Canadian Pacific railroad. Current locomotive demand is showing more activity.

Pittsburgh, July 30.—Although there is a lack of new freight car business, builders here are well engaged. Business at one of the local plants is reported by officials as the best in five years. Except for an inquiry by New York, New Haven & Hartford railroad for 5000 to 6000 tons of tie plates, the market also is lacking in pending work in track material. Specifications reflect the usual seasonal slowness, although fastening business is more active than a year ago. Light rails are in fair demand at the present time.

CAR ORDERS PLACED

Canadian Pacific, 100 80-ton ore cars, to Canadian Car & Foundry Co.
Chicago Great Western, two combination baggage and mail cars, to Pullman Car & Mfg. Corp.
Chicago, Milwaukee, St. Paul & Pacific, 15 caboose underframes, to Bettendorf Co.
Cudahy Packing Co., 50 freight car underframes, to Pullman Car & Mfg. Corp.

LOCOMOTIVE ORDERS PLACED

Chilean State Railways, 12 locomotives, to Baldwin Locomotive Works.
Edward Hines, Western Pine Co., two locomotives, to Baldwin Locomotive Works.
Northern Pacific, 11 locomotives, to Baldwin Locomotive Works.

CAR ORDERS PENDING

Chicago & Eastern Illinois, 10 automobile cars.

LOCOMOTIVE ORDERS PENDING

Chicago, Burlington & Quincy, 25 locomotives, contemplated.
New York Central, 35 oil-electric locomotives.
St. Louis-Southwestern, 10 locomotives.
Texas & Pacific, 15 locomotives; these are in addition to five of different type previously noted as pending.

Gray Iron Unfilled Orders Lower

Cleveland, July 30.—Production of gray iron castings by 119 representative foundries reporting to the Gray Iron Institute Inc., Cleveland, in June was 113.2 per cent of normal, on the average monthly output of the last three calendar years. 103 foundries reporting on the business outlook, were divided as follows: 40 good, 56 fair and 7 poor. Following is a comparison for June:

	No of Foundries Reporting	Short tons	Per cent of Normal*
Normal production	119	24,825	100.0
Production, June, 1929	119	28,114	113.2
New orders, rec'd. June	70	13,405	98.9
Unfilled orders, June 30	68	10,951	76.5
Materials rec'd†	101	25,739	113.3
Mat'ls on hand June 30†	98	35,559	161.5

*Normal production is the average monthly production in 1926, 1927 and 1928. The percentages are in ratio to the total normal production for the number of foundries shown.
†All grades of pig iron and all grades of scrap.

Strip

Excellent Tonnage for July Continues to Come Out—Production at Lower Rate

IN SPITE of midsummer slackness demand for steel strip is unusually good, although automotive demand has decreased. Mills can give prompt delivery on some widths while deliveries on others are four to six weeks. Chicago producers have decreased their operations due to hot weather. Semifinished supplies are more satisfactory than recently.

STRIP PRICES, PAGE 278

Pittsburgh, July 30.—Strip steel demand continues satisfactory, although decrease is noted compared with the active spring months. This is accounted for largely by decline in activity of automotive interests although tonnage moving to this industry still is heavy. Prospects for increased automotive production next month as yet are not reflected in strip steel requirements. The tonnage moving to the two largest interests, however, shows no decrease. Mill backlogs are considerably depleted on some sizes although unfilled business in other widths will require four to six weeks' work. Producers are in a good position generally for supplies of semifinished steel although operations continue affected by warm weather. Prices show no new developments, hot strip continuing 1.90c and 2.00c for the two sizes, with 2.75c the firm minimum on cold-rolled material.

New York, July 30.—While 2.65c, Pittsburgh, was done here recently on cold rolled steel, the market appears to have firmed up to a minimum of 2.75c, Pittsburgh, with some smaller business going as high as 2.85c. Hot strip up to 6 inches in width is steady at 2.00c, Pittsburgh, and 6 to 24-inch, 1.90c, Pittsburgh.

Youngstown, O., July 30.—Mills still possess such satisfactory backlogs that they are scheduled well ahead. This applies as well to hot-rolled as to cold-rolled grades. Narrow widths continue in good demand with hot mills, but so also does most grades of narrow cold-rolled. Quotations have not changed and mill operations now are entering upon the tenth successive month of capacity rates.

Cleveland, July 30.—Demand for hot and cold rolled strip is subsiding gradually, though a fair volume is being booked. No improvement is noted over recent weeks in the automotive industry. Deliveries are easier. Hot strip is 1.90c for widths over 6 inches, and 2.00c for 6 inches and under. Cold strip generally is 2.75c, but some of the larger users are able to place business at 2.65c.

Chicago, July 30.—Hot rolled strip mill operations in this district are about 85 per cent. Specifications are running into moderately heavy volume from general consuming lines, although the automotive slump is marked. Hot rolled prices are reported firm at 2.10c to 2.30c, Chicago, for 6 inches and under, while 6 1/16-inch to 24-inch is 2.00c to 2.10c, Chicago.

Cold rolled strip mill operations are at a lower rate, or about 70 to 75 per cent for the district. Backlogs are dwindling and specifications are slow. The dullness is due largely to lack of tonnage from the automotive industry. Prices for cold rolled strip are 2.75c to 2.85c, Pittsburgh-Cleveland.

Philadelphia, July 30.—Strip demand is less active than in recent weeks, but mills are well scheduled. Prices are steady. Several attractive lots of cold rolled strip have been sold at 2.75c, base, Pittsburgh.

Cold Finished Steel

July Specifications Holding Close to June Rate

COLD FINISHED PRICES, PAGE 278

Pittsburgh, July 30.—July specifications for cold finished steel bars and shafting are holding well to the June rate although there is less pressure for shipment and requirements of some automotive interests have declined further. Requirements of the two leading interests show no abatement. The market continues firm at 2.30c, Pittsburgh.

Cleveland, July 30.—The majority of users of cold finished bars have covered for third quarter, including automotive manufacturers. The market is firm at 2.35c, base, Cleveland.

Wire

Manufacturers' Wire in Best Demand—Nails Continue Weak—Road Mesh in Demand

MANUFACTURERS' wire and mesh for concrete road reinforcement give most support to the market, while nails continue weak with price concessions in the South and Southwest, foreign competition being active there. Prices generally are firm, with less shading than formerly. Automotive users are taking less tonnage than during the past few months.

WIRE PRICES, PAGE 278

Chicago, July 30.—Specifications for most wire products are light except manufacturers' and merchants' wire, while a fair tonnage is reported for electrical wire and fencing. It is stated that nail business is not sufficient to keep 50 per cent of mill capacity operating. Prices on nails are reported weaker in some sections, although producers state that the full price is holding fairly well except in Ohio river and Southern territory. Dealer quotations in the West, however, are being named at $2.65c to $2.80, Chicago or western mills.

Worcester, Mass., July 30.—Wire shipments in July fell 4 per cent below June, due to falling off in the automobile trade, but plant operations have not been curtailed in view of otherwise heavy demand. Prices are holding steady at 2.75c, Worcester base, for plain bright wire to dealers.

New York, July 30.—Nail buying is light with a price of $2.55 to jobbers in more evidence, although not yet general. Prompt deliveries of wire now are available. Wire demand is steady and prices unchanged. Mills

Buffalo, July 30.—Demand for welded mesh for road construction is leading in the wire markets. Departments producing this material are operating at 100 per cent and are scheduled solidly for 60 days. Wire prices are holding steady and much less shading than usual has taken place during the last three months.

Pittsburgh, July 30.—July business in wire products is expected to compare favorably with June, with a small gain compared with the total a year ago. Specifications for fencing declined considerably this month although manufacturers' wire showed increased activity. Nail demand continues slow. Requirements of automotive interests for wire are off slightly this month. The price situation on wire nails continues spotty, quotations being weak in the South and Southwest, due partly to foreign competition. A fairly steady tone, however, prevails in the eastern section, with the market generally firm in this district at $2.65 to $2.75. Weakness in plain wire is less pronounced, the market holding fairly well in all sections at 2.50c to 2.60c.

Cleveland, July 30.—Manufacturers' wire continues in heavy demand, mainly miscellaneous orders. Prices generally are firm, though a few deviations are reported.

Nonferrous Metals

Copper and Lead Sales Become More Active —Zinc Market Quiet But Prices Are Unchanged—Tin Fluctuations Are Narrow

Prices of the Week, Cents a Pound

	Copper Electro delivered	Copper Lake delivered	Copper Casting refinery	Straits Tin New York Spot	Straits Tin New York Futures	Lead New York	Lead East St. Louis	Zinc St. Louis	98-99% Aluminum	Spot Antimony	Ingot Nickel
July 24	18.00	18.07½	17.37½	47.37½	48.12½	6.75	6.55	6.80	23.90	8.50	35.00
July 25	18.00	18.07½	17.37½	47.00	47.62½	6.75	6.55	6.80	23.90	8.50	35.00
July 26	18.00	18.07½	17.37½	47.10	46.90	6.75	6.55	6.80	23.90	8.62½	35.00
July 29	18.00	18.07½	17.37½	47.12½	48.00	6.75	6.55	6.80	23.90	8.62½	35.00
July 30	18.00	18.07½	17.50	47.25	48.00	6.75	6.55	6.80	23.90	8.55	35.00

NEW YORK, July 30.—Copper and lead sales have become increasingly active in the past week but otherwise buying of the major nonferrous metals has shown very little change. Antimony has been in the strongest and most active market in a long time. The rise of ⅜-cent in quotations from the low point at the middle of the months is regarded as conservative in view of the unusually large buying done by consumers in the past week.

Buying of brass and copper mill products is a little more active than in some time. Demand consists mostly of small lots for early shipments, and is of such a nature as to give mills the impression that buyers may come into the market in a larger way at any time. Mills are not as busy as they were through the winter and spring, but they are operating at much higher rates than is customary for midsummer.

Copper—Buying of copper for domestic use remains light, mostly for prompt or August shipment. There are indications that buyers are more interested in covering their needs. Export demand has been good, and there appears to be rising activity. Practically all of this buying is for relatively early shipment. The price situation in copper is unchanged. Nearly all producers other than custom smelters remain out of the market.

Zinc—Prime western business has been extremely quiet in the past week. All producers continue to ask 6.80c, East St. Louis, and a little business has been done at this figure, mostly for prompt and August shipment. The ore market is unchanged at $44 a ton. The ore situation in the Joplin district is one of the chief sustaining factors. High grade zinc is quoted unchanged and is moving in heavy tonnage.

Tin—Price fluctuations have been narrow in the past week, spot being mostly a little above 47.00c a pound and futures around 48.00c. Buying by consumers has been lighter. The trend of the market has been uncertain. Prices are several cents above the low point of the spring. Consumers have bought a fair amount of futures metal recently, and in some instances have gone unusually far ahead. It is not certain whether there is sufficient buying power behind the market to sustain much higher prices for any length of time. July statistics will be announced in a few days, and it is generally thought now that they will show no decided change.

Lead—The price recovery in the London market in the past few days has served as a stimulus to domestic buyers. The market here has become more active for prompt and August shipments. Prices are unchanged but firm.

Aluminum—Prices are unchanged. Shipments have fallen off as is usual at this season. Total business so far this year, however, has been exceptionally large.—*Daily Metal Trade.*

Mill Products

Base price cents per pound f.o.b. mill, except where otherwise specified

SHEETS	
Yellow brass (high)	23.25
Copper, hot rolled	27.75
Lead, full sheets (cut ¼c more)	10.00
Zinc sheet (100-pound base)	$10.25
Zinc strip (100-pound base)	$9.25
Aluminum, flat sheets, up to 10 gage, 3 to 72 inches wide	31.30
SEAMLESS TUBE	
Yellow brass (high)	28.25
Copper	29.25
RODS	
Yellow brass (high, full turnings)	21.25
Naval brass	24.00
WIRE	
Copper	19.87½
Yellow brass (high)	23.75

Old Metals

Dealers' buying prices, cents per pound

HEAVY RED BRASS	
New York	12.00 to 12.50
Chicago	11.50
Cleveland	12.50 to 13.00
HEAVY YELLOW BRASS	
Cleveland	8.50 to 9.00
ZINC	
New York	3.25 to 3.50
Cleveland	3.25 to 3.50
HEAVY COPPER AND WIRE	
New York	14.25 to 14.50
Boston	13.50 to 14.00
Chicago	12.50
Cleveland	13.50 to 14.00
RED BRASS BORINGS	
New York	11.00 to 11.50
YELLOW BRASS TUBING	
Cleveland	8.50 to 9.00
LIGHT COPPER	
New York	12.25 to 12.50
Chicago	11.50
Cleveland	12.50 to 13.00
LIGHT BRASS	
Boston	6.75 to 7.25
Chicago	7.50 to 8.00
Cleveland	6.50 to 7.00
ALUMINUM	
Clippings, Cleveland	17.50 to 18.00
Borings, Cleveland	9.00 to 9.50
Cast, Cleveland	12.00 to 12.50
Cast, Boston	10.00 to 10.50

Secondary Metals

Remelt aluminum No. 12	17.00 to 17.50
Brass ingot, 85-5-5-5	16.25 to 16.50

Coke By-Products

Production Is High But No Surplus Accumulates—Prices Firm

New York, July 30.—Firmness continues in the light oil distillates market. Prices are unchanged, but an undertone of strength is noted in all materials. Production holds seasonally high, but the broad movement against contract shipments, a fair export demand for benzol and good movement of available spot lots prevent any sizable accumulations.

Benzol is finding a broad outlet and export buying for motor fuel keeps the market well cleaned of any surplus. Toluol and commercial xylol are also finding a good market at steady prices while solvent naphtha is firm in a brisk market, after some letdown.

Supply of phenol continues light, the bulk moving steadily against contracts, leaving but little for the open market. Stocks are frequently commanding premiums, but most business is done around 16.00c a pound in 250-pound drums at producers' plants.

Coke Oven By-Products

Per Gallon at Producers' Plant in Tank Lots

	Spot
Pure Benzol	$0.23
90 per cent benzol	0.23
Toluol	0.40
Solvent naphtha	0.30
Commercial xylol	0.30
Per Pound at Producers' Plants in 250-Pound Drums	
Phenol	0.16 to 0.17
Per Pound at Producers' Plants	
Naphthalene flakes	0.05½ to 0.06½
Naphthalene balls	0.06½ to 0.07½
Per 100 Pounds Delivered	
Sulphate of ammonia	$2.20 to 2.25

Quicksilver Is Steady

New York, July 30.—Quicksilver is steady at $123 to $123.50 a flask. Spot supplies here are scarce.

Warehouse

Sales Good Considering Season—Debate Adoption of New Mill Extras on Cold Finished—Prices Steady in Most Districts

MOVEMENT of iron and steel out of warehouse is unusually high for late July in most districts, paralleling the mill situation. In some centers there is a tendency toward shrinkage.

New York—Conformation with new mill extras on cold finished steel bars and shafting will not likely follow in the local jobbing market, except possibly in analysis extras. This may not take place soon and, some leading jobbers believe, no action will be taken with regard to quantities. While slower than a month ago, warehouse business continues above seasonal normal. Prices on blue annealed, black and galvanized sheets are irregular. Most jobbers of cold rolled strip steel are employing new shearing extras. As the new card greatly increases the number of cutting charges, the principal complaint has been that it complicates billing and insofar as some jobbers are concerned, the extras are still on trial.

Buffalo—Warehouses report July orders will practically equal those of May or June except for the usual slowing down experienced around the Fourth of July. This July compares favorably also with the same month last year, one of the best in 1928. August outlook is said to be good. Sales indicate widespread distribution of materials.

Pittsburgh—Little decline is noted in sales this month and July business probably will equal June's. Demand continues well diversified. The new card of extras for cold drawn steel is expected to benefit jobbers through the increase in small-lot differentials.

Cleveland—Miscellaneous requirements continue in fairly good demand, though the volume of business shows a tendency to diminish slightly. Prices generally are steady.

Cincinnati—A slight spurt in demand for building materials the last two weeks in July brought July total of warehouse business ahead of June. Several large projects are contemplated and warehousemen are optimistic.

St. Louis—Distribution of finished iron and steel goods from warehouses is reported in good volume, season considered. Some betterment is noted in purchasing of building materials, and the general manufacturing trade is accounting for heavy tonnages.

Philadelphia—Reports from different jobbers indicate tonnage booked by them in July was fully as large as in June. Prices are firm and unchanged.

Warehouse Quotations in Cents Per Pound at Leading Market Centers

STEEL BARS

Baltimore	3.25c
Boston	3.265c
Buffalo	3.30c
Chicago	3.00c
Cincinnati	3.30c
Cleveland	3.00c
Detroit	3.00c
Ft. Worth	3.75c
Houston	3.00c
Los Angeles	3.30c
New York†††‡	3.25c
Philadelphia*	2.80c
Pittsburgh	2.90c
Portland	3.00c
San Francisco	3.15c
Seattle	3.15c
St. Louis	3.15c
St. Paul	3.25c
Tulsa	3.75c to 4.04c

IRON BARS

Baltimore	3.25c
Boston	3.265c
Buffalo	3.30c
Chicago	3.00c
Cincinnati	3.30c
Detroit	3.00c
Ft. Worth	3.75c
New York††	2.80c to 3.24c
Philadelphia*	2.80c
St. Louis	3.15c
Tulsa	3.75c to 4.04c

REINFORCING BARS

Baltimore	3.31c
Boston	3.265c to 3.50c
Buffalo	2.95c
Cincinnati	3.15c
Cleveland	2.25c to 2.44c
Detroit	2.30c to 3.00c
Ft. Worth	3.50c
Houston	3.00c
Los Angeles cl.	2.65c
Los Angeles, lcl.	3.00c
New York	2.90c to 3.30c
Philadelphia	2.75c to 3.10c
Pittsburgh	2.90c to 3.175c
San Francisco cl.	2.00c
San Francisco lcl.	2.25c
Seattle	3.00c
St. Louis	3.15c
Tulsa	3.75c to 4.00c
Youngstown	2.30c to 2.60c

STRUCTURAL SHAPES

Baltimore	3.25c
Boston	3.365c
Buffalo	3.40c
Chicago	3.10c
Cincinnati	3.40c
Cleveland	3.00c
Detroit	3.10c
Ft. Worth	4.00c
Houston	3.25c
Los Angeles	3.30c
New York†††‡	3.25c to 3.30c
Philadelphia*	2.70c
Pittsburgh	3.00c
Portland	3.00c
San Francisco	3.15c
Seattle	3.15c
St. Louis	3.25c
St. Paul	3.35c
Tulsa	3.75c to 4.14c

PLATES

Baltimore	3.25c
Boston	3.365c
Buffalo	3.40c
Chicago	3.10c
Cincinnati	3.40c
Cleveland, ¼-in. and thicker	3.00c
Cleve., 3/16-in.	3.20c
Detroit	3.10c
Detroit, 3/16-in.	3.10c
Ft. Worth	4.00c
Houston	3.00c
Los Angeles	3.30c
New York‡‡	3.30c
Philadelphia*	2.70c
Pittsburgh	3.00c
Portland	3.00c
San Francisco	3.15c
Seattle	3.15c
St. Louis	3.25c
St. Paul	3.35c
Tulsa	3.75c to 4.14c

NO. 10 BLUE ANNEALED

Baltimore	3.60c
Boston 3/16-in.	3.915c
Buffalo	3.50c
Chicago	3.35c
Cincinnati	3.45c
Cleveland	3.25c
Detroit	3.35c
Ft. Worth	4.50c
Houston	3.90c
Los Angeles	4.00c
New York‡‡	3.70c to 3.90c
Portland	3.75c
Philadelphia*†	3.25c
Pittsburgh**	3.35c to 3.45c
San Francisco	3.80c
Seattle	4.00c
St. Louis	3.45c
St. Paul	3.75c
Tulsa	4.20c to 4.34c

NO. 24 BLACK SHEETS

Baltimore*†	3.75c
Boston	4.85c
Buffalo	4.20c
Chicago	4.05c
Cincinnati	4.05c
Cleveland***	3.75c to 3.90c
Detroit	3.95c
Ft. Worth	4.70c
Los Angeles	4.90c
New York	3.90c to 4.00c
Philadelphia*†	4.10c
Pittsburgh**	3.85c
Portland	4.90c
San Francisco	4.90c
Seattle	5.00c
St. Louis	4.25c
St. Paul	3.89c
Tulsa	4.34c

NO. 24 GALVANIZED SHEETS

Baltimore*†	4.50c
Boston	5.60c
Buffalo	4.70c to 4.85c
Chicago	4.90c
Cincinnati	4.90c
Cleveland***	4.60c to 4.75c
Detroit	4.75c
Ft. Worth	5.50c
Houston	5.40c
Los Angeles	5.30c
New York	4.60c to 4.75c
Philadelphia*†	4.85c
Pittsburgh**	4.85c to 4.95c
Portland	5.50c
San Francisco	5.30c
Seattle	5.50c
St. Louis	5.10c
St. Paul	4.68c
Tulsa	5.10c to 5.35c

BANDS

Baltimore	4.00c
Boston	4.015c to 5.00c
Buffalo	3.65c
Chicago	3.20c
Cincinnati	3.50c
Cleveland	3.25c to 3.65c
Detroit 3/16-in. and lighter	3.30c
Ft. Worth	4.25c
Houston	3.65c
Los Angeles	4.15c
New York‡‡	3.75c
Philadelphia*	3.30c
Pittsburgh	3.25c
Portland	4.00c
San Francisco	3.75c
Seattle	4.00c
St. Paul	3.50c
Tulsa	4.50c to 4.69c

HOOPS

Baltimore	4.00c
Boston	5.50c to 6.00c
Buffalo	4.05c
Chicago	3.75c
Cincinnati	4.05c
Cleveland	3.25c to 3.65c
Detroit, No. 14 and lighter	3.80c
New York‡‡	4.25c
Philadelphia*	3.55c
Pittsburgh	4.25c
Seattle	5.00c
St. Paul	4.00c

COLD FINISHED STEEL

	Rounds, hexagons,	Flats, squares
Baltimore (c)	3.50c	(a) 4.00c
Boston	3.55c	4.05c
Buffalo	3.95c	4.45c
Chicago	3.60c	4.10c
Cincinnati	3.85c	4.35c
Cleveland	3.65c	4.15c
Detroit	3.85c	4.35c
Los Angeles (a)	4.50c	.....
New York	3.60c	4.10c
Philadelphia*	3.60c	4.10c
Pittsburgh	3.70c	4.20c
Portland (a)	4.50c	.....
San Fran. (a)	4.25c	.....
Seattle (a)	5.00c	.....
St. Paul (a)	3.85c	.....
Tulsa	4.64c	5.14c

(a) Rounds only.

COLD ROLLED STRIP

Boston, 0.100-inch, 500 pound lots	5.30c
Buffalo	5.85c
Chicago (b)	6.10c
Cincinnati	7.15c
Cleveland (b)	5.95c
Detroit	5.80c
New York	5.15c
Philadelphia (c)	5.15c

(b) Net base, straightening, cutting, boxing 1 ton or more.

(c) Plus mill, size and quantity extras.

SWEDISH IRON AND STEEL

New York duty paid

Hollow drill steel	13.00c
Iron bars, round	6.10c
Iron bars, flats and squares	6.50c

*Plus quantity differentials. ‡‡Minus quantity differentials. ††Domestic bars. **Less than 25 sheets. *†50 or more bundles. ***Less 0.15c where more than 10 bundles are ordered at once for delivery at one time.

Pacific Coast

Northwest Has Unusual Tonnage Pending—California Sales Show Slackening

OREGON and Washington has an unusual aggregate pending tonnage of iron and steel material for various projects, all to be placed within 90 days. California activity is somewhat less at the moment but prospects are for an active autumn. Prices are steady in all markets. Pipe bookings in both areas are large with much pending.

Seattle, July 27.—Heavy pending tonnages feature the iron and steel market of the Pacific Northwest. While lettings have been larger than normal this month, business to be awarded within 90 days is expected to exceed 20,000 tons. This includes contracts at Vancouver, B. C., Portland and Seattle. About 6500 tons of the estimated total is Seattle municipal work.

The pending tonnages include nearly 10,000 tons of structurals, 7000 tons of plates and 4000 tons of cast iron pipe, reinforcing materials and sheet steel piling.

Pig Iron and Coke

Foundry activity is low and operators expect no material improvement until September. Midseason dullness has been more acute than usual this year. In view of conditions there is little interest in pig iron and coke. Buying is restricted to small lots for quick delivery. A majority of the plants are well stocked.

Coast Pig Iron Prices

Utah basic	$25.00 to 26.00
Utah foundry	25.00 to 26.00
*German	24.25
*Indian	25.00 to 26.00

*C.i.f. duty paid.

Bars, Plates and Shapes

Mill prices of bars, plates and shapes remain firm and steady at 2.35c, while reinforcing steel is being maintained on a basis of 2.30c.

Local steel mills report less inquiry for reinforcing materials and most orders of the last fortnight have been in car lots. No awards of more than 100 tons were reported this week. The largest contracts pending include 290 tons for the Tacoma Port's cold storage plant, bids now in, and 1150 tons for the Garfield street bridge, Seattle, bids Aug. 2.

Williamette Iron & Steel Works, Portland, has the contract to build a large size sulphite digester for the Rainier Pulp & Paper Co., Shelton, Wash., involving 150 tons of plates. Bids opened last Friday for Seattle's Maple Leaf reservoir pipe line, a 54-inch steel main, 11,560 feet long, show J. L. Smith Construction Co., Seattle, low bidder for lockbar and electrically welded pipe. A third proposition called for riveted steel pipe. This job involves 3500 tons of plates and will probably be officially awarded this week. It is understood that Western Pipe & Steel will have the subcontract for fabricating the pipe. Vancouver, B. C., will open bids Aug. 1 for 19,500 feet of 36-inch steel pipe while another improvement in the same city calls for 10,000 feet of 18-inch pipe.

Multnomah county commissioners, Portland, have approved plans and bids will be received Aug. 19 for the St. Johns bridge, next to the Longview project the largest in years in the Northwest. This contract will involve about 8000 tons of structurals and will aggregate $4,250,000. Garfield street bridge, Seattle, bids Aug. 2, will require 950 tons of shapes while the East Bremerton bridge, bids probably in September, calls for 600 tons. Tillamook county, Oreg., will open bids July 27 for a steel span over the Nehalem river. This project involves 105 tons of structurals. Isaacson Iron Works, Seattle, obtained a contract for furnishing a small tonnage of shapes involved in the navy Sand Point project, Seattle.

Pipe

Important cast iron pipe projects are pending both here and in British Columbia. Representatives of manufacturing firms report active demand for their product and considerable tonnage is to be let within 90 days. Awards this week include 300 tons of sand cast pipe taken by the American Cast Iron Pipe Co. involved in two Seattle improvement projects, Twelfth avenue west and Forty-seventh avenue west.

Old Materials

Steel scrap is quoted at $10 and $11, gross, at local mills, and receipts are heavy. Exporters are still active in seeking desirable tonnages at Port land and Vancouver, B. C. Cast iron scrap is unchanged at $14.50 to $14.75, gross, with demand limited as foundries are buying only in small lots.

Bookings Show Decline

San Francisco, July 27.—(*By Air Mail*)—Movement of iron and steel products on the Coast this week was not as heavy as was expected and with the exception of cast iron pipe, bookings were the lowest in over a month. Among the more important were 900 tons of structural shapes for an office building in Portland, 500 tons for a hotel in San Francisco and over 2000 tons of cast iron pipe for Oakland, Calif. Considerable interest has been aroused in the persistent rumor that the United States Steel Corp. will take over the holdings of the Columbia Steel Corp.

Some improvemnt is reported in operations of jobbing foundries both in the bay district and in the southern part of the state. Sanitary ware and stove plants have been working full for some time. No large inquiries developed during the week, however. Prices are unchanged.

Bars, Plates and Shapes

Awards of concrete bars were the lightest in over a month and totaled 1653 tons. An office building in Santa Monica took 300 tons and paving work in Alameda county, Calif., required 208 tons. Prices in the San Francisco district remain at 2.20c, base, on carload lots, and at 2.60c, on smaller lots while Los Angeles prices continue firm at 2.40c, base, on carload quantities and 2.70c, on lesser lots. Merchant bar prices continue at 2.35c, c.i.f.

East Bay municipal utility district, Oakland, awarded 100 tons for a 54-inch riveted pipe line with an unknown company. So far this year 81,160 tons have been placed as compared with 16,686 tons for the same period a year ago. Prices are firm, apparently, at 2.35c, c.i.f.

During the past week structural bookings aggregated 1790 tons, bringing the year's total to 120,736 tons, compared with 84,111 tons for the corresponding period in 1928. Among the larger tonnages placed were 900 tons for an office building in Portland, secured by Poole & McGonigle, 500 tons for a hotel in San Francisco, placed with McClintic-Marshall Co. and 200 tons for a factory in Los Angeles, taken by the Consolidated Steel Corp. Pending business is of light proportions. New inquiries include 1500 tons for an office building for the Los Angeles Stock Exchange. Plain material continues firm at 2.35c, c.i.f. coast ports.

Other Finished Material

Cast iron pipe bookings this week were the largest in over a month and totaled 3355 tons. East Bay municipal utility district awarded 2173 tons to the United States Pipe & Foundry Co. The next largest lot involved 852 tons for Pasadena, Calif., 75 tons being placed with the Pacific States Cast Iron Pipe Co. and 777 tons going to the United States Pipe & Foundry Co. Pending business is not heavy, less than 2200 tons being up for figures or pending. Standard steel pipe is moving well and some improvement in demand for oil country goods is noted. The Pacific Gas & Electric Co., San Francisco, plans to install a 16-inch pipe line across the Carquinez straits bridge to serve lower valley towns. This company has taken no action on its inquiry for 2263 tons of gas pipe for Monterey, Gilroy and Salinas.

P & W. Va. Railroad Asks To Build Extension

Washington, July 30.—The Pittsburgh & West Virginia railroad has filed application with interstate commerce commission for authorization to build an extension of 5.77 miles long. This extension is to be on a point on its Connellsville extension now under construction to a connection with the Donora Southern railroad to give it entrance into the Donora industrial district, thus giving competition with the Pennsylvania lines which have served it exclusively up to this time. The original plan to have this extension built by the Donora Southern, which is an industrial railroad owned by the American Steel & Wire Co., has been changed to the parent road itself as a common carrier.

Perfects Car Loader

Niles, O., July 30.—Successful experiments have been concluded with an automatic car loader invented by two Niles men, brothers, Edward R. and Harry Edwards. The machine, now successfully used at the plant of the Mahoning Valley Steel Co., is the eighth they have built and finally perfected. It performs as much work as 14 men in one day. It lifts one-quarter of a carload of sheets at one time, carries it out of the warehouse and deposits it on the inside of the box car, piled and placed for shipping. Wheels of the truck have been tested for 50 tons, and electric motors supply the power. The brothers have formed the Edwards Engineering Co. to build these loaders.

Refuses To Re-open Case

Youngstown, O., July 30.—Considerable disappointment seems to have resulted here in the announced refusal of the interstate commerce commission to reopen the hearing on the application of the Lisbon & Western railroad to build from this city to the Ohio river. The application for the rehearing came about through the recent acquisition by the Montour railroad interests of the Youngstown & Southern, a suburban railroad running south from this city.

Pig Iron

(*Concluded from Page* 279)

largest of such transactions involved 2000 tons of basic. The delivered price here was $16.69. The blast furnace interest figured on the new rate of $3.69 from Birmingham to St. Louis. Suspension of this rate meant paying the old tariff of $4.42, so that instead of $13, as expected, the iron figured to $12.27, furnace. Shipments generally have receded further, and so far this month the total is below that of June and also of July, 1928. Sales reported in the past several days totaled about 4800 tons. The leading local producer quotes $20 to $20.50, Granite City, but is understood to be meeting competition. Southern prices range from $17.82 to $18.92, delivered in St. Louis. Chicago producers continue to quote $20, furnace.

Birmingham, Ala., July 30.—Small-lot sales predominate in the southern pig iron market. Shipments approximate production. No. 2 foundry is offered at $14.50, base, Birmingham, with sales made north of the Ohio river at $14, and reports of further concessions. Basic iron has been weaker than the foundry grade. Republic Iron and Steel Co. will blow out one of its stacks next month. Two other stacks in this district will be blown out later, for repairs.

Toronto, Ont., July 30.—Pig iron demand is confined to small spot orders. Despite the summer letup new business shows an improvement of 15 to 20 per cent over last year. Prices are firm.

New York July 30.—While pig iron buying is showing some improvement, hesitancy is attributed to the southern pig iron situation. Southern stocks are estimated at around 500,000 tons. The market here continues to figure back to $17.50 to $18, Buffalo, with some small tonnages going as high as $18.50. It is estimated fully 15,000 tons of pig iron has been sold in this district in the past week, with no single order taking more than 1500 tons. One seller here sold more than 5000 tons. A total of 15,000 tons is pending. The American Radiator Co., reported in the market for 4000 to 10,000 tons, denies that it is inquiring for pig iron at this time. Recent inquiries include 1000 tons of No. 2X and No. 1X for a New England textile foundry for delivery over the remainder of the year. Another New England foundry is inquiring for 500 tons to 1000 tons. The New England producer sold 5000 tons during the past week to consumers in its territory. Incidentally, this producer has reduced its stocks more than one-half, from 90,000 tons.

Philadelphia, July 30.—Several good sized lots of foundry iron were closed in the past week, mainly with northern furnaces. Buying by Baltimore consumers was especially notable, and several eastern Pennsylvania plants placed round lots. Some consumers are covering requirements over the remainder of the year. Eastern Pennsylvania foundry iron continues $21 to $21.50, base, furnace. Some Buffalo iron is being sold in eastern Pennsylvania at $22.40 to $22.90, delivered, for the base grade. Recent business includes 10,000 to 15,000 tons for shipment by barge from a Massachusetts furnace to a melter in that state. Southern basic is obtainable at about 50 cents less than northern basic, but none appears to have been purchased recently. Movement of southern iron to Delaware river pipe plants has been comparatively small. The only basic shipped to this territory from Birmingham recently involves a few thousand tons for Pencoyd plant of American Bridge Co.

Operating Rates

Record Looms in Valley—Pittsburgh and Chicago at 95 Rate

Youngstown, O.—Hot, humid weather, common to midsummer in the valley, had the usual effect the past week of reducing finishing mill production somewhat, but had no effect upon curtailing the rates of ingot operations. July this year, therefore, seems certain to surpass any other July in valley history as to tonnage production of all steel products, operating rates averaging around 90 per cent. Of 51 independent open-hearth furnaces in the district, 46 are making steel this week, with bessemer operations continued on two shifts. Independent bar mills are at 80 per cent and Carnegie Steel Co. continues unchanged at 90 per cent. Strip mills are at capacity, as also are independent tin plate mills, while Steel corporation tin mills are at 80 per cent. Of the 120 independent sheet units, 113 are running this week. Pipe mills have 14 units active out of the new total of 21 seamless, welded and electric-welded units in the district.

Pittsburgh—Ingot producers are endeavoring to hold production at capacity, with the actual rate continuing close to 95 per cent. Furnace failures result in slight variations from time to time in this figure. Some finishing mills are falling below schedule due to warm weather, with the result that sheet and tin plate mills are running at 90 to 95 per cent compared with the scheduled rate of 95 to 100 per cent. Strip production is between 95 per cent and capacity. Pipe mills hold at 65 to 75 per cent for seamless and 60 to 65 per cent for welded.

Chicago—Measured by steelworks blast furnace operations the ingot rate for the district would figure about 98 per cent, but actual output of open-hearth furnaces and finishing mills, due to necessity for intermittent repairs and because of the heat, is about 95 per cent. It is stated the latter figure would more nearly represent actual operating conditions in the district now, particularly with the recent hot weather. Twenty-nine of the 36 blast furnaces in the district are active. Bar, plate and structural mills continue close to capacity operations. Rail mill operations have been reduced slightly in recent weeks and are about 70 to 75 per cent.

Buffalo—While hot weather has reduced steel production to some extent there is no change in the operating rate of district open-hearth furnaces, daily production schedules showing 32 to 33 of the 37 units in the district engaged in making steel. August production will run only slightly behind present averages and may hold the current rate, it is predicted.

Yawata Steel Works, Japan, announces it will start the manufacture of sheet steel piling.

First Half U. S. Steel Corp. Net Gain Is 103 Per Cent over 1928

PROFITS of the United States Steel Corp. in the second quarter and first half of 1929 registered large gains over the corresponding periods one year ago, and rose to the highest levels of any peacetime year. Net profits in the three months ended with June were $53,825,843, after depreciation and other charges. This compared with $42,185,447 in the preceding quarter and $25,868,758 in the like period of 1928. The comparative statement of earnings by quarters follows:

	Second quarter 1929	First quarter 1929	Second quarter 1928
Total earnings	$71,995,461	$60,105,381	$46,932,986
Depletion, deprec,, etc...	15,919,386	14,716,828	16,504,085
Net income	56,076,075	45,388,553	30,428,901
Bond interest	2,250,232	3,203,106	4,560,143
Balance	53,825,843	42,185,447	25,868,758
Dividends:			
Preferred ..	6,304,919	6,304,919	6,304,919
Common ..	14,053,032	12,453,411	12,453,411
Surplus	33,467,892	23,427,117	7,110,428

Earnings by months showed the May figure at the best level for the quarter with total earnings at $25,604,641 compared with $22,361,428 in April and $24,029,392 in June. Total profits in June, 1928, were $16,358,660.

Net earnings for the first six months were $96,011,290 after depreciation and other charges compared with $47,200,629 in the first half of 1928. The increase over one year ago was 103 per cent. The comparative six months' statement follows:

	1929	1928
Total earnings	$132,100,842	$87,867,018
Depletion, depreciation, etc.	30,636,214	31,530,978
Net income	101,464,628	56,336,040
Bond interest	5,453,338	9,135,411
Balance	86,011,290	47,200,629
Dividends:		
Preferred	12,609,838	12,609,838
Common	26,506,443	24,906,822
Surplus	56,895,009	9,683,969

Net profit in the June quarter was equal to $6.68 a share on the 7,116,235 shares of common stock outstanding June 30. Based on the 8,030,304 shares which share in the dividend just declared, the earnings equal $5.91 a share. This compares with $5.04 a share on 7,116,235 shares in the first quarter.

Six months' earnings were equal to $10.38 a share on 8,030,304 common shares against $4.86 a share on the 7,116,235 shares in the first half of 1928. A comparison of monthly earnings follows:

	1929	1928	1927
January	$18,759,098	$11,899,549	$13,513,787
February	19,080,941	13,581,337	14,943,305
March	22,265,342	15,453,146	17,128,633
First quarter	60,105,381	40,934,032	45,584,725
April	22,361,428	13,927,481	15,449,965
May	25,604,641	16,646,845	15,566,192
June	24,029,392	16,538,660	15,024,303
Sec. quarter ..	71,995,461	46,932,986	46,040,460
First half	132,100,842	87,867,018	91,625,185

Second quarter earnings of Bethlehem Steel Corp., after deducting all charges and dividends on preferred, were equal to $5.33 per share on the average number of shares of common stock outstanding during the quarter, an additional 600,000 shares having been issued as of June 18. These earnings compare with $4.05 per share in first quarter and $1.57 in the second quarter of 1928. Orders on hand June 30 were valued at $56,829,800, against $62,702,683 on March 31 and $51,761,908 on June 30 last year. Operations averaged 100.6 per cent of capacity, against 91.9 per cent in first quarter and 82.5 per cent in the second quarter of 1928. Current operations are at a rate of approximately 99 per cent. E. G. Grace, president, stated that export business was at the highest rate in the company's history. He expects the current operating rate of 99 per cent to be increased in August with prospects of the year being one of the best in the company's history.

Following is a comparison of earnings:

	Second quarter 1929	First quarter 1929	Second quarter 1928
Total income	$18,069,082	$15,245,471	$10,767,959
Less interest	2,773,642	2,780,575	2,841,636
Balance	$15,295,440	$12,464,896	$ 7,926,323
Less depletion, depreciation and obsoles.	3,528,967	3,419,306	3,396,995
Net income	$11,766,473	$ 9,045,590	$ 4,529,328
Less dividends:			
Preferred....	$ 1,750,000	$ 1,750,000	$ 1,697,500
Common	3,600,000	2,400,000*	.....
Total	$ 5,350,000	$ 4,150,000*	$ 1,697,500
Surplus	$ 6,416,473	$ 4,895,590*	$ 2,831,828

*Adjusted to reflect dividend payable Aug. 15, 1929, on additional 600,000 shares issued June 18, 1929.

Sharon Steel Hoop Co., Sharon, Pa., reports net earnings for first half, after depreciation, interest and tax, of $944,550.34, compared with $971,853.53 for all of 1928. This is equivalent to $2.63 per share on the 359,240 shares outstanding.

During first half the company began production on its new continuous hot strip mill and new cold rolled strip mill, as well as other equipment, part of which was placed under construction in 1928. These departments add materially to the company's income.

Allis-Chalmers Mfg. Co., Milwaukee, reports second quarter net profits of $1,165,713 after all charges, equivalent to $4.07 a share on the 285,999 shares of common stock. This compares with $1,013,375, or $3.65 per share for first quarter and $3.09 a share for second quarter 1928. For the first six months of this year net equals $7.72 per share, compared with $5.69 per share for first half of the year of 1928.

Electric Controller & Mfg. Co., Cleveland, reports earnings for first half of 1929 at $357,222.06 after depreciation and federal taxes, equivalent to $5.04 per share, compared with $2.60 per share for first half 1928, and $6.31 per share for all of the year of 1928.

General Electric Co., reports profits available for dividends from first half operations at $32,028,154.42, compared with $25,675,307.38 for first half 1928. Orders received during second quarter showed an increase of 32 per cent over second quarter of 1928 and those of first half were 30 per cent above those of first half 1928.

Spang,Chalfant & Co., Inc., Pittsburgh, reports for the first six months net income after all charges of $2,046,275, equal, after preferred dividends, to $2.17 a share on 750,000 common shares. This compares with $1,077,275 or 96 cents a share in the 1928 period. Net of $1,105,442 for the June quarter compares with $940,833 for the first three months of this year and $681,275 for the second quarter of last year.

Earnings of the A. M. Byers Co., Pittsburgh, established a new high record for second quarter. Net profit after all charges was $530,199, against $410,645 in the preceding three months and $484,232 in the corresponding 1928 period. Net for the nine months ended June 30 was $1,361,540, or $3.90 a share against $1,078,654 for the same period a year ago. The fiscal year ends Sept. 30.

Furnishes Pump Motors

Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., has received the order for electrical equipment for new pumping stations in the cities of Baltimore and Dallas, Tex. Twelve synchronous motors are to be supplied, eight for the Dallas station and four for the Baltimore station. The motors range from 125 to 800 horsepower. To insure quiet operation in the Baltimore station which is located in a residential district, covers over the motors are arranged to discharge ventilating air near the floor, expanding the air gradually as it is discharged. The air duct within the cover is lined with acoustical felt.

Foreign Trade Shows Loss in June

Drop in Scrap Cuts Exports Heavily—Half Year Exports Heavier Than 1928, While Imports Shrink—Less Iron Ore Brought In

CONTINUING the decline begun in May, exports of iron and steel products in June were 13,705 gross tons less than in the preceding month and 29,769 tons less than the high April total. This decrease, which represented 5.2 per cent of the May shipments, brought the total for June down to 247,811 tons and resulted almost entirely from a decline in the tonnage of scrap iron and steel exported, the total loss being further swelled by decreases in the trade in pig iron and rails. Fortunately, however, there were more instances of gains than of losses and it appears that the general tone of the trade for the more competitive and highly finished products was distinctly better.

The import trade also dropped in volume and more than one-half of the gain shown in May was wiped out. The loss in this instance amounted to 10,637 tons, or 14.3 per cent of the May total, and brought the total for June down to 63,635 tons. The trend in this instance was toward a reduction which, with the exception of tubular products, appeared quite generally over the entire list of products and may possibly point to the end of the period of increase which characterized the May trade, states the iron and steel division, department of commerce.

Both of the changes above noted acted to materially affect the figures of daily average performance. Exports in June were at the rate of 8260 tons per day in contrast with 8436 tons in May and 9253 tons in April—imports averaging 2121 tons against 2396 tons and 1811 tons, respectively. Over the first six months of the current year exports have averaged 8795 tons per day and imports 1981 tons.

Cumulative exports for the first half of 1929 at 1,591,839 tons were 234,477 tons or 17.3 per cent superior to those for the same period of 1928 while imports at 357,845 tons were 36,243 tons or 9.2 per cent less than in 1928.

The bulk of the loss in June exports occurred in the trade in the semimanufactured products, with most of the trade in steel mill products showing slight to strong increases. Of the 18 classes of products in which the shipments declined the largest drop was that shown in scrap (13,100 tons), an amount nearly as great as the total decrease. Other losses of moment were those in pig iron (4987 tons), rails (3110 tons), plates (2545 tons), and ingots (2505 tons). Most of the 24 instances of increased trade showed relatively slight gains, the notable exceptions being the increases in shipments of black and galvanized welded pipe (4245 tons), tin plate (3504 tons), black steel sheets (1978 tons), and casing and oil line pipe (1195 tons).

Of the June exports, 56.4 per cent

IMPORTS AND EXPORTS
Gross Tons

	—1929—		—1928—	
	Imports	Exports	Imports	Exports
Jan.	54,793	274,296	58,635	205,766
Feb.	58,146	259,711	48,756	185,907
March	52,622	270,925	74,128	221,935
April	54,337	277,580	71,579	215,184
May	74,272	261,516	72,106	267,890
June	63,635	247,811	65,819	262,052
6 mos.	357,845	1,591,839	393,728	1,357,362
July	.....	.....	47,830	253,336
Aug.	.....	.....	69,914	287,297
Sept.	.....	.....	57,782	228,056
Oct.	.....	.....	63,880	256,870
Nov.	.....	.....	67,103	256,886
Dec.	.....	.....	55,199	221,810
Total	.....	.....	782,694	2,862,997

ORIGIN OF PIG IRON IMPORTS
Gross Tons

From	June	May
France	101	.....
Netherlands	3,600	2,916
Norway	464	228
Sweden	200	200
United Kingdom	3,040	6,342
Canada	49	36
Mexico	39	32
British India	3,903	4,314
Germany	.....	50
British Malaya	.....	275
Total	11,396	14,393

ORIGIN OF FERROMANGANESE IMPORTS
Gross Tons

From	June	May
France	116	.....
Germany	100	.....
Norway	1,164	52
United Kingdom	1,261	1,425
Canada	2,620	3,090
Italy	237	172
Sweden	36	17
Total	5,534	4,756

ORIGIN OF MANGANESE IMPORTS
Gross Tons

From	June	May
Soviet Russia in Europe	22,547	20,375
Canada	2,325	.....
Brazil	21,253	6,851
British India	4,880	255
Java and Madura	285	286
Total	51,290	27,767

ORIGIN OF IRON ORE IMPORTS
Gross Tons

From	June	May
Sweden	27,331	22,723
Spain	6,797	13,048
Greece	7,400	.....
Canada	298	5
Cuba	50,000	56,400
Chile	126,590	130,316
Algeria and Tunis	12,930	25,800
Australia	4,007	.....
Egypt	8,560	8,000
Brazil	.....	8,800
Newfoundland	.....	10,670
Total	243,913	275,672

ORIGIN OF IMPORTS
Gross Tons

From	Ingots, blooms, etc.	Steel scrap	Cast iron pipe	Steel bars
Belgium	541	.....	222	769
France	683	.....	6,437	490
United Kingdom	13	10	.....	108
Canada	5	5,027	20	5
Germany	166	59	.....	361
Sweden	263	212	.....	1,358
Italy	.....	150	.....	.....
Cuba	.....	1,200	.....	.....
Austria	.....	.....	.....	34
Norway	.....	.....	.....	1
Czechoslovakia	.....	.....	.....	45
Total	1,671	6,658	6,679	3,170

IMPORTS OF IRON AND STEEL PRODUCTS
(In gross tons)

Item	June 1929	May 1929	January through June 1929	January through June 1928
Pig iron	11,396	14,393	73,461	75,295
Ferromanganese and alloys (1)	5,534	4,756	32,584	24,405
Ferrosilicon (2)	561	733	4,137	1,711
Ferrochrome (3)	20	121	240	338
Scrap	6,658	6,837	43,273	22,844
Steel ingots, blooms, billets, etc.	1,671	2,863	12,383	11,870
Steel bars	3,170	3,912	18,272	50,346
Iron bars	672	222	1,983	1,351
Wire rods	1,336	2,778	8,596	9,417
Hoops, bands, and scrolls	3,245	5,039	14,678	14,865
Boiler and other plate	72	75	2,422	3,157
Sheets, skelp and sawplate	2,266	3,199	10,430	14,839
Tin plate	27	23	142	592
Structural shapes	12,274	14,744	69,107	88,842
Rails and splice bars	1,332	744	3,060	9,646
Cast iron pipe	6,679	6,907	26,274	31,517
Other pipe and tubes	4,032	4,170	22,056	21,055
Barbed wire	612	360	2,965	1,749
Round iron and steel wire	295	467	3,266	2,032
Steel telegraph and telephone wire	....	....	....	143
Flat wire and strip steel	162	346	1,103	1,207
Wire rope and strand	256	206	1,264	803
Other wire	85	77	349	278
Nails, tacks, and staples	1,079	1,099	4,540	3,843
Bolts, nuts, rivets and washers	32	11	136	143
Castings and forgings	169	190	1,124	1,800
Total	63,635	74,272	357,845	394,088

(1) Manganese content.
(2) Silicon content.
(3) Chromium content.

were shipped to countries within North and Central America and the West Indies, a rather larger proportion than had been the case over the six months ended June 30 when only 51.2 per cent of the total had gone to these markets. South American consumers took 10.9 per cent of the June total (13.5 per cent going to that territory in all of 1929). Europe took 12.7 per cent (12.1 per cent), the Far East 18.9 per cent (22.5 per cent), and Africa 1.1 per cent (0.7 per cent.) It should be noted that shipments to all of these areas with the exception of South America were greater in 1929 than over the first six months of 1928.

Exports of iron ore in June totaled 230,969 tons, a sharp gain in comparison with the 129,928-ton trade of May. Of the June shipments, all except 5 tons which went to Panama were directed to Canadian destinations.

As in May, Germany was the principal source of the iron and steel products imported into the United States, her total of 12,580 tons being made up principally of shapes, "other" pipe, sheets, and hoops. Canada took second place with 10,042 tons, scrap making up one-half of the total trade with ferromanganese and rails also as important items. Other leading sources were France which supplied cast iron pipe and structural shapes; Belgium with shapes and hoops; and the United Kingdom with pig iron and ferromanganese.

Java imported 34,843 tons of structural steel in 1928, compared with 27,217 tons in 1927.

DESTINATION OF JUNE IRON AND STEEL EXPORTS
(In gross tons)

To	Rails	Galvanized sheets	Plates not fab.	Tin, terne plate	Black sheets	Barbed wire	Steel bars	Steel scrap
Argentina	.....	785	1	2,003	.....	620	.....	.....
Australia	.....	67	13	.....	1,402	.....	.....	.....
Brazil	795	729	1	224	.....	1,267	355	.....
Canada	1,681	3,584	14,791	3,892	9,231	528	7,460	9,936
Central America	.....	358	24	.....	27	419	220	.....
Chile	277	50	170	561	.....	.....	.....	.....
China	373	156	.....	224	.....	.....	.....	973
Colombia	224	354	57	58	.....	209	.....	.....
Cuba	150	617	617	303	.....	620	234	.....
France	.....	1,230	.....	.....	228	.....	.....	.....
Italy	2,174	.....	.....	584	168	.....	.....	5,411
Japan	.....	.....	271	4,345	.....	.....	.....	12,800
Mexico	119	1,355	1,355	668	331	618	194	1,660
Philippines	168	1,182	.....	566	5	486	229	.....
Peru	297	.....	101	126	.....	.....	429	.....
United Kingdom	.....	.....	.....	.....	92	.....	2,058	405
Venezuela	75	.....	.....	15	.....	.....	.....	.....
Total	7,389	12,604	16,600	18,041	15,718	5,697	12,249	42,816

Miscellaneous: Steel scrap, Poland, 7,406; Spain, 2,747; Germany, 605. Tin and terne plate, Dutch West Indies, 53; Egypt, 635; Other Europe, 60; Greece, 840. Galvanized sheets, Other Europe, 189; Finland, 135; Norway, 33; Dutch East Indies, 547; British India, 177; Norway, 33; British South Africa, 12. Rails, Dutch West Indies, 63. Plates not fab., Soviet Russia, 357; Europe, 52. Black sheets, Europe, 56. Steel bars, Europe, 11.

EXPORTS OF IRON AND STEEL PRODUCTS
(In gross tons)

	June 1929	May 1929	January through June 1929	January through June 1928
Pig iron, not including ferroalloys	3,101	8,088	30,790	25,329
Ferromanganese and speigeleisen	104	88	1,013	4,861
Scrap	42,816	55,916	249,720	251,131
Ingots, blooms, etc.	4,199	6,704	25,051	10,299
Skelp	13,674	15,244	53,795	46,557
Iron bars	171	341	2,754	1,843
Steel bars	12,249	14,720	112,620	70,768
Alloy steel bars	931	974	11,400	7,492
Wire rods	2,774	3,197	23,060	18,529
Plates	17,640	20,185	107,296	71,726
Galvanized sheets	12,604	11,342	86,420	75,125
Black steel sheets	15,718	13,740	92,763	90,311
Black iron sheets	1,373	1,526	7,545	7,488
Hoops, bands and strip steel	6,275	6,233	42,858	27,697
Tin plate, terneplate, etc.	18,041	14,537	136,121	125,099
Structural shapes, plain material	31,268	30,331	145,866	89,873
Structural shapes, fabricated	7,363	6,652	54,671	40,226
Metal lath	541	490	3,060	2,277
Steel rails	7,389	10,499	85,566	109,124
Rail fastenings, switches, frogs, etc.	3,223	2,318	17,047	27,574
Boiler tubes	1,286	1,613	9,560	8,358
Casing and oil line pipe	8,509	7,314	72,974	54,443
Black and galvanized welded pipe	12,572	8,327	68,784	53,901
Malleable iron screwed pipe fittings	1,143	701	6,291	4,411
Cast iron screwed pipe fittings	945	1,154	5,984	2,988
Cast iron presaure pipe and fittings	1,430	649	5,466	6,787
Cast iron soil pipe and fittings	1,042	926	5,645	7,585
Plain wire	3,789	3,518	26,137	23,672
Barbed wire and woven wire fencing	6,395	5,409	35,688	38,426
Wire cloth and screening	150	142	912	849
Wire rope	738	505	3,922	2,578
Insulated wire and cable	45	115	594	288
Other wire and manufactures of	1,017	961	5,791	4,404
Wire nails	952	513	7,958	8,607
Nails other than wire	868	482	5,006	4,857
Tacks	60	55	343	401
Horseshoes	45	8	183	205
Bolts, nuts, rivets, except track	1,206	1,234	8,127	6,500
Car wheels and axles	1,448	1,584	12,467	7,624
Iron castings	815	1,174	7,079	6,937
Steel castings	1,239	1,011	6,299	5,240
Forgings	663	996	7,213	4,972
Total	247,811	261,516	1,591,839	1,357,362

DESTINATION OF IRON AND STEEL
(In gross tons)

Country of Destination	June 1929	January through June 1929	January through June 1928
North and Central America and the West Indies	139,449	814,751	651,279
Canada and Newfoundland	117,056	675,614	535,834
Cuba	4,624	36,352	31,246
Guatemala	335	3,827	5,835
Honduras	736	6,727	3,951
Mexico	10,876	46,085	39,797
Panama	1,040	10,221	8,508
Salvador	234	4,213	1,911
British West Indies	1,662	12,385	4,367
Other West Indies	2,127	14,384	15,035
Other Central America	759	4,943	4,795
South America	27,026	215,321	217,350
Argentina	8,420	53,787	51,202
Brazil	4,681	33,516	41,308
Chile	2,879	31,841	36,125
Colombia	2,723	24,730	35,206
Peru	2,365	17,672	13,390
Uruguay	374	5,441	5,084
Venezuela	5,189	45,313	31,900
Other South America	395	3,021	3,135
Europe	31,599	192,652	149,673
Belgium	165	1,800	7,297
France	1,564	9,854	2,499
Germany	766	12,724	20,415
Italy	10,495	64,432	44,101
Netherlands	168	1,514	1,333
Poland and Danzig	7,406	47,762	32,040
Rumania	182	1,805	2,396
Soviet Russia in Europe	159	2,112	1,569
United Kingdom	5,455	31,311	26,454
Other Europe	5,239	19,338	11,569
Far East	46,982	357,518	331,157
British Malaya	85	4,408	3,414
China	4,587	41,351	57,535
Netherlands East Indies	3,269	36,821	14,051
India and Ceylon	1,440	11,246	13,562
Japan	27,558	186,742	181,572
Kwantung	609	7,871	2,981
Philippine Islands	5,078	47,051	44,133
Australia	2,593	11,447	7,585
New Zealand	226	2,795	1,047
Other Asia and Far Eastern Markets	1,537	7,786	5,277
Africa	2,755	11,597	7,903
Union of South Africa	1,029	4,193	3,480
Egypt	1,100	5,195	3,088
Mozambique	288	1,104	479
Other Africa	338	1,114	856

Exports of Metalworking Machinery

(In number except where otherwise specified)

	June 1929	June 1928	January through June 1929	January through June 1928
Engine lathes	65	85	447	417
Turret lathes	34	43	282	229
Other lathes	82	42	489	350
Vertical boring mills and chucking machines	7	5	138	56
Thread-cutting and automatic screw machines	82	87	477	444
Knee and column type milling machines	32	47	230	175
Other milling machines	76	115	378	370
Gear-cutting machines	41	38	248	192
Vertical drilling machines	36	52	215	272
Radial drilling machines	9	15	63	80
Other drilling machines	81	104	922	427
Planers and shapers	79	43	260	226
Surface grinding machines	54	.....	115	.....
External cylindrical grinding machines	44	86	409	470
Internal grinding machines	41	55	250	250
Tool grinding, cutter grinding, and universal grinding machines	177	61	851	325
Pneumatic portable tools	1,707	1,616	12,326	10,766
Chucks for machine tools	2,448	1,944	10,117	7,055

Britain Loses Rank as World Steelmaker

Proportion of iron and steel produced in Great Britain since the war has declined in comparison to total world output, according to a survey of the British iron and steel industry by the department of commerce. In 1913 Great Britain produced 13 per cent of the total world production of pig iron amounting to 77,710,000 tons while in 1927 her share had dropped to less than 9 per cent. In 1913 the output of British steel mills accounted for about 10 per cent of world production of 74,680,000 tons; in 1927 world production had increased to 98,900,000 tons of which Great Britain's share was approximately 9 per cent.

Following the outbreak of the war, the bulletin points out, there was a striking increase in productive capacity of the British iron and steel industries. The capacity of blast furnaces rose from 11,000,000 tons in 1913 to 12,000,000 in 1927; while the capacity of British steel works increased from 8,000,000 to 12,000,000 and rolling mills and forges from 7,000,000 to 11,000,000. The failure of blast furnaces to keep pace with steel works and rolling mills, the report states, raises the question whether there is a lack of balance in the industry at present. At the beginning of the present year there were 424 blast furnaces in the United Kingdom of which an average of 140 were in blast during the year. The average output of these furnaces was 47,224 tons per annum or about 908 tons per week.

Many Cars on Order

Railroads July 1 had 39,638 freight cars on order, the largest number on any similar date in the past five years, according to the American Railway association.

This was an increase of 24,979 cars above the number on order July 1 last year and an increase of 16,359 cars above the same day two years ago. It also was 2385 cars above July 1, 1926.

Locomotives on order July 1 this year numbered 386, compared with 106 on the same day in 1928, and 237 July 1, 1927. July 1, 1926, the railroads had 646 on order.

New freight cars placed in service in the first six months of 1929 totaled 32,794, of which box cars totaled 15,196; coal cars, 11,482; flat cars, 2017; refrigerator cars, 3007, and stock cars, 975. Other classes installed in service during that period totaled 117. New locomotives placed in service in the first six months of 1929 numbered 319.

Canada Shows Gain in Steel Production

Toronto, Ont., July 30.—New production records for first half of this year have been established by Canadian steel mills and metal working plants. Shipments were upward of 15 per cent greater than those of the corresponding period of last year, and sales and specifications advanced 20 to 25 per cent over those of the best year since 1920. Activity in demand for structural steel has been an especially noticeable feature and several contracts have been closed lately in which up to 5000 tons of steel were involved. Bridge construction on a large scale has been a stimulating factor and at present bridges proposed for Ontario and Quebec will involve upwards of 15,000 tons. An extensive bridge building program has just been announced by the Quebec government and actual construction work on two or three of the largest of these structures will be started within the month. Bar iron and steel are in good demand with a number of manufacturing consumers who formerly purchased through jobbers now placing orders with mills.

To Celebrate Ohio River Canalization

Completion of the canalization of the Ohio river from Pittsburgh to Cairo, Ill., a project involving over 50 locks and dams, will be celebrated at the thirty-fifth annual convention of the Ohio Valley Improvement association, Oct. 12-18. The convention will take the form of a river trip from Pittsburgh to Cairo on the new all-steel steamer CINCINNATI stops being planned at ports in each of the six valley states. The 1000-mile trip will be made in seven days, with business sessions and addresses by prominent speakers on board the steamer. The dedication of lock and dam 53 will mark the completion of an improvement program for the Ohio river requiring a half century's time and a financial expenditure of over $125,000,000.

Walter Bates Steel Corp., Gary, Ind., has booked an order for 24,000 square feet of subway flooring from the Mississippi River Fuel Corp., and for flood control work. The company is enjoying heavier business than at any time this year.

Convention Calendar

Sept. 3-6—American Institute of Electrical Engineers. Annual Pacific coast convention at Santa Monica, Calif. F. L. Hutchinson, 33 West Thirty-ninth street, New York, is secretary.

Sept. 9-10—American Manganese Producers' association. Annual convention. Mayflower hotel, Washington. H. A. Pumpelly, Metropolitan bank building, Washington, secretary.

Sept. 9-12—American Welding society. Annual fall meeting at Hotel Statler, Cleveland. M. M. Kelly, 33 West Thirty-ninth street, New York, is secretary.

Sept. 9-12—American Institute of Mining and Metallurgical Engineers. Meeting of iron and steel division at Hotel Cleveland, Cleveland. H. Foster Bain, 29 West Thirty-ninth street, New York, is secretary.

Sept. 9-12—American Institute of Mining and Metallurgical Engineers. Meeting of institute of metals division at Hotel Cleveland, Cleveland. W. M. Corse, 810 Eighteenth street, Washington, is secretary.

Sept. 9-13—American Society for Steel Treating. Eleventh annual convention and national metal exposition at Public auditorium, Cleveland. Headquarters at Hotel Cleveland. W. H. Eisenman, 7016 Euclid avenue, Cleveland, is secretary.

Sept. 10-13—Iron and Steel institute (Great Britain). Autumn meeting at Newcastle-on-Tyne, England. G. C. Lloyd, 28 Victoria street, London, S.W.1, is secretary.

Sept. 11-13—American Society of Mechanical Engineers. Meeting of iron and steel division at Hollenden hotel, Cleveland. P. T. Wetter, 29 West Thirty-ninth street, New York, is secretary.

Sept. 19-21—American Electrochemical society. Fall meeting at William Penn hotel, Pittsburgh. Dr. Colin G. Fink, Columbia university, New York, is secretary.

Sept. 24-25—American Refractories institute. Annual technical meeting at Columbus, O. Dorothy A. Texter, 2218 Oliver building, Pittsburgh, is secretary.

Sept. 30-Oct. 2—National Industrial Advertisers association. Eighth annual convention in Cincinnati. H. VonP. Thomas, Bussman Mfg. Co., St. Louis, is secretary.

Sept. 30-Oct. 4—National Machine Tool Builders' association. Second national machine tool exposition at Public auditorium, Cleveland. E. F. DuBrul, 321 Provident Bank building, Cincinnati, is secretary.

Sept. 30-Oct. 4—National Safety council. Eighteenth annual meeting at Chicago. William H. Cameron, 108 East Ohio street, Chicago, is managing director.

Oct. 2-4—Society of Automotive Engineers. Production meeting at Hotel Cleveland, Cleveland. Coker F. Clarkson, 29 West Thirty-ninth street, New York, is secretary.

Oct. 7-10—American Society of Mechanical Engineers. Third national fuels division meeting in Philadelphia. Calvin W. Rice, 29 West Thirty-ninth street, New York, is secretary.

Oct. 21-24—American Hardware Manufacturers association. Annual meeting at the Marlborough-Blenheim hotel, Atlantic City, N. J. Charles F. Rockwell, 342 Madison avenue, New York, is secretary-treasurer.

Oct. 21-24—National Hardware Association of the United States. Thirty-fifth annual convention at the Marlborough-Blenheim hotel, Atlantic City, N. J. George A. Fernley, 505 Arch street, Philadelphia, is secretary-treasurer.

Oct. 24-26—American Gear Manufacturers association. Semiannual meeting at Benjamin Franklin hotel, Philadelphia. T. W. Owen, 3608 Euclid avenue, Cleveland, is secretary.

Industrial Men in the Day's News

J. F. Donahue, New President, Foster Bolt & Nut Mfg. Co., Cleveland

WITH Pittsburgh for his birthplace, it was not unusual that that city and other steel centers such as New Castle, Pa., Chicago and Cleveland, should furnish the background for his industrial career.

A 35-YEAR connection with the nut and bolt industry fitted him remarkably well to succeed A. M. Foster when, in June of this year, the latter retired and was made board chairman.

WITH numerous duties in Chicago as well as Cleveland, he still manages to devote a liberal portion of his time to nut, bolt, rivet and cap screw association effort.

BORN and reared in the inherently "steel" atmosphere of Pittsburgh, it perhaps is only natural and what could have been expected that in the steel industry should be founded and anchored the business career of J. F. Donahue. For nearly 35 years he has been actively identified with the nut and bolt industry and when A. M. Foster, president of the Foster Bolt & Nut Mfg. Co., Cleveland, retired and was elected chairman of the board, Mr. Donahue was considered a fitting successor. He was elected president and general manager as noted in IRON TRADE REVIEW of June 13, 1929.

Mr. Donahue was graduated from the commercial department of the Pittsburgh high school in 1895 and almost immediately entered the employ of the Oliver Iron & Steel Co. there as an office boy. He worked for that company in a number of positions and for several years was manager of the order and shipping department. In 1903, however, he resigned to become secretary and sales manager of the New Castle Forge & Bolt Co., New Castle, Pa. Five years later, in 1908, he became affiliated with Russell, Burdsall & Ward Bolt & Nut Co., as western sales manager, with headquarters in Chicago. He had charge of the Indiana and Michigan territory, including the automotive trade of Detroit, and as far west as Salt Lake City. In 1920 he again transferred his sphere of activity, to Cleveland, becoming associated with the Foster Bolt & Nut Mfg. Co., as vice president and general manager, in which office he served until June of this year, when he was elected president and general manager.

He also is vice president and treasurer of the Donahue Steel Products Co., Chicago, and notwithstanding comprehensive duties there as well as in Cleveland, finds time to devote to trade association activity. He is first vice president of the Bolt, Nut and Rivet Manufacturers' association and also is a member of the executive committee of the Cap Screw association. He holds memberships in the Union and Manikiki Country clubs, Cleveland, as well as the Detroit and Chicago Athletic clubs, Detroit and Chicago, respectively.

He derives his greatest pleasure from hard work, but for occasional relaxation and exercise he likes to play golf as opportunity affords.

CHARLES E. EVELETH, since 1927 vice president, General Electric Co., Schenectady, N. Y., and associated with C. C. Chesney and W. R. Burrows in the management of the manufacturing department of the company, has been transferred to the engineering department, and as vice president will be associated with E. W. Allen in the direction of that department's affairs.

Mr. Eveleth will give special attention to the problems of the designing departments and works laboratories. Mr. Allen will direct his attention to the work of the commercial engineering, the contract service and district engineering departments.

Mr. Eveleth has been in the employ of the General company since 1899. In September, 1922, he was named

assistant manager of the Schenectady works and on Jan. 1, 1923, was appointed works manager, a position he held until elevated to the vice presidency four years later.

* * *

Thomas L. Thomas, formerly vice president of the McKay Machine Co., Youngstown, O., will become affiliated with the Wean Engineering Co., Warren, O., in an executive capacity. The Wean company has arranged for the exclusive sale to the iron and steel industry of the McKay company's roller leveling equipment.

* * *

A. H. Corey, for five years factory engineer of the Piston Ring Co., Muskegon, Mich., recently resigned to become general manager of the piston ring department of the Aluminum Industries Corp., St. Cloud, Minn.

WILLIAM L. DITGES
Elected vice president of Mackintosh-Hemphill Co., Pittsburgh, as noted in IRON TRADE REVIEW of July 11

* * *

Hal R. Keeling, vice president of Sidener, Van Riper & Kelling Inc., Indianapolis, has been added to the board of directors of the Perfect Circle Co.

* * *

C. W. Nixon, formerly assistant general manager of the Central Foundry Co., Holt, Ala., has been made manager of operations at the southern plants of the company, with headquarters at Bessemer, Ala.

* * *

Robert K. Plummer, who has been in charge of the Indianapolis office of Gears & Forgings Inc., Cleveland, has been made assistant sales manager of the company at Cleveland.

George W. Davis, formerly of the company's Chicago office, has been transferred to Indianapolis to succeed Mr. Plummer.

* * *

H. S. Rawdon now is chief of the division of metallurgy, bureau of standards, Washington, succeeding Dr. H. W. Gillett, resigned. Mr. Rawdon has been in charge of optical metallurgy of the bureau.

* * *

J. G. Vincent, vice president of engineering, Packard Motor Car Co., Detroit, was presented with the honorary degree of master of engineering by the University of Michigan at its recent commencement exercises.

* * *

Benjamin Dixon, formerly sales manager of the Industrial Works, Bay City. Mich., has been appointed Detroit and Chicago district manager for the Ohio Locomotive Crane Co., Bucyrus, O., with headquarters at Detroit.

* * *

Gerard Swope, president of the General Electric Co., Schenectady, N. Y., has been elected a director of the National City bank, New York. This is the first time Mr. Swope has become associated with any enterprise outside the electric and power field.

* * *

Harry G. Hart has sold his interest in the Salem Brass & Iron Mfg. Co., Bridgeton, N. J., to his former partners, Joseph Powers and Thomas H. Powers. The company has been reorganized with Joseph Powers as president and Thomas H. Powers as secretary and treasurer.

* * *

Walter Mickelson, formerly works manager of the T. L. Smith Co., Milwaukee, and at one time superintendent of the Oilgear Co., has been made works manager of the Kempsmith Mfg. Co., Milwaukee, milling machines. Mr. Mickelson was also formerly connected with the Kearney & Trecker Corp.

* * *

Arthur T. Kathner, inventor of a normalizing furnace, sailed recently for a trip to England, France, Italy and Germany where furnaces of this type are to be installed.

* * *

Jack C. Richardson has been appointed manager of the Washburn Wire Co., Phillipsdale, R. I., to fill the vacancy caused by the death of Thomas Wray. Mr. Richardson had been assistant manager for the past two years and before that time and since his graduation from Brown university had been assistant superintendent of the American Electrical Works.

Clarence P. Bearse has been advanced to position of assistant manager. He was previously assistant superintendent and metallurgist.

Sidney W. Wray has been appointed sales manager.

* * *

J. E. Ferris, who has been with the Corrigan, McKinney Steel Co., Cleveland, and its predecessors for many years, latterly as vice president, secretary and treasurer, declined re-election at the annual meeting held July 20 and resigned.

E. G. Resch who has been with the organization for 30 years as auditor was elected secretary and treasurer.

* * *

Otto A. Seyferth, vice president in charge of operations of the West Michigan Steel Foundry Co., Muskegon, Mich., which recently acquired the Austin Machinery Corp., that city, resigned from the board of directors of the Greater Muskegon chamber of commerce. He will have charge of operations at both plants of the organization.

W. R. DUDA
Appointed chief engineer of Mackintosh-Hemphill Co., Pittsburgh, to succeed William L. Ditges, as noted in IRON TRADE REVIEW of July 11

* * *

H. P. Dailey, for nine years manager of the specialty department of Edward G. Budd Mfg. Co., Philadelphia, in charge of steel salvage and identified with that company for 12 years, resigned recently to organize his own company, Dailey-Lockwood Inc., Twenty-second and Westmoreland streets, Philadelphia, jobber and distributor of sheet steel and metal products, of which he is president.

J. B. Lockwood, secretary and treasurer of the new company, has been

associated with the A. M. Wood Co., Philadelphia, for several years, selling steel and metal specialties.

Theodore Mungen has been appointed manager of the specialty department of the Edward G. Budd Mfg. Co., Philadelphia, to succeed Mr. Dailey.

* * *

George Davies, New York, general agent for Davies & Thomas, Catasauqua, Pa., will return from a two months' trip abroad, Aug 2.

* * *

Hal R. Keeling, vice president of an Indianapolis advertising company, has been elected a director of the Perfect Circle Co., Hagerstown, Ind.

* * *

Herbert Stanton, who was appointed European manager of the Norton Co., Worcester, Mass., sailed July 26 for his headquarters in London.

* * *

J. C. Williams, vice president and general manager of the Weirton Steel Co., Weirton, W. Va., is spending a vacation in Europe.

* * *

Ray C. Croutch, for nearly 20 years mechanical engineer of the Riter-Conley Co., Pittsburgh, has become works manager of the Reeves Bros Co., Birmingham, Ala.

* * *

James A. Farrell, president of the United States Steel Corp., sailed from New York July 27 for a five-week visit in Europe. He was accompanied by Mrs. Farrell and James A. Farrell, Jr.

* * *

T. W. Kennedy, president, Mystic Iron Works, Boston, sailed from New York July 27 for a brief trip to England, Germany and France. He will return to New York Aug. 20.

* * *

Willis B. Kyle, vice-president, McClintic-Marshall Co., at Los Angeles, has resigned and E. F. Gohl has been appointed manager of the Los Angeles district.

* * *

Matthew C. Brush, president, American International Corp., has been elected a director of the Foster-Wheeler Corp., manufacturer of steam power plant and oil refining machinery.

* * *

William Forstrom, for the past nine years chief engineer of Wisconsin Steel Co., Chicago, has retired because of ill health. Mr. Forstrom will make his permanent home in Tucson, Ariz., where he has business interests.

* * *

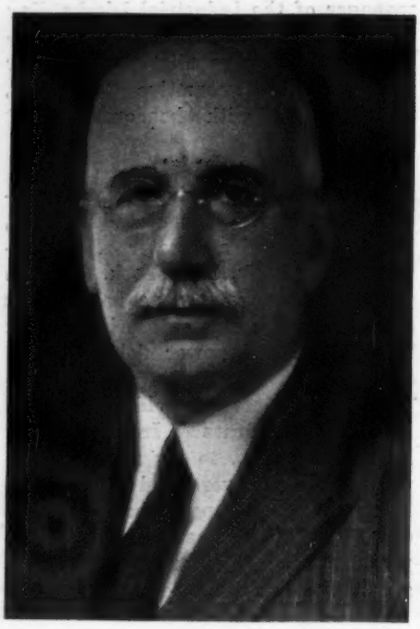
Harold S. Falk, vice president, the Falk Corp., Milwaukee, has been named chairman of the committee on industrial education of the National Metal Trades association. He has been chairman of the apprenticeship committee of the Milwaukee branch of the association for seven years.

* * *

Jean Roche, senior engineer at Wilbur Wright field, Dayton, O., will take over the presidency of the Aeoronautical Corp. of America, at Cincinnati, August 15. Mr. Roche is the inventor of the "flivver" plane which the company hopes to manufacture in 1000 lots in 1930.

* * *

Charles E. Satler, affiliated with the United Engineering & Foundry Co., Pittsburgh, and its predecessor company for 44 years, and secretary of the former since its organization, has resigned. Mr. Satler was born in Pittsburgh in 1863 and received his public and high school education in that city. He was one of the organizers of McGill & Co. in 1885 and served as vice president and treasurer of that company until it merged into the United Engineering & Foundry Co. in 1901. His service as secretary of the company dates since that time. In addition, Mr. Satler formerly was in charge of all machinery sales.



CHARLES L. SATLER

George H. Friesel, treasurer, has been elected secretary, in addition to his regular duties, to fill the unexpired term of Mr. Satler.

J. H. Hillman Jr. has been elected a director to fill a vacancy.

* * *

C. W. Miller, for 46 years treasurer of the Jeffrey Mfg. Co., Columbus, O., has resigned. He continues a member of the board of directors. He also has resigned as secretary and treasurer of the Ohio Malleable Iron Co., Columbus.

Harry Supp, former credit manager, succeeds Mr. Miller at the Jeffrey company.

* * *

George A. Jacobs, president and founder of the Dudlo Mfg. Co., Fort Wayne, Ind., subsidiary of the General Cable Corp., of which he is vice president and member of the executive committee, and Wendell C. Glass, plant manager, have resigned. With associates they will form a new company to engage in the manufacture of magnet wire, windings and electrical specialties for the automotive, radio and electrical industries.

* * *

Grover C. Brown, for the past six years chief civil engineer of the Cambria plant of the Bethlehem Steel Co., has been appointed management's representative to succeed C. L. Baker, who on Aug. 1 assumes new duties in charge of industrial and public relations of the Bethlehem company for the Buffalo district. Mr. Baker has been affiliated with the steel industry for more than 25 years, during 10 years of which he was connected with the Carnegie Steel Co. at Donora, Pa., and at Pittsburgh. He joined the Bethlehem company in 1913. Mr. Baker is chairman of the safety engineering division of the American Institute of Iron and Steel Electrical Engineers.

* * *

Thomas O'Brien, for nine years superintendent of the Farrell works of the American Sheet & Tin Plate Co., has been appointed manager of the Gary tin plate mills, effective Aug. 1, succeeding W. C. Loyd, resigned. John A. Butler, manager of the New Castle works, has been appointed to succeed Mr. O'Brien. E. R. Thompson, assistant manager of the Shenango works, succeeds Mr. Butler at New Castle. John M. Crombie, assistant manager of the Laughlin works, replaces Mr. Thompson, while Harold S. Pyle succeeds Mr. Crombie. R. B. Saylor has been made assistant manager of the Wellsville works, while A. G. Rinderknecht has been placed in a similar position at the Dover works. All of the latter appointments also are effective Aug. 1, according to announcement by W. A. Irvin, vice president in charge of operations.

Textile Mills Expanding

New York, July 30.—Demand for textile machinery is brisker, both in New England, where replacement orders are numerous, and in the South where several new large mills are be-

ing equipped. Several New England textile units are being changed over for new production, this requiring new machinery in most instances. Not only small unit orders for textile machinery, but also complete mill units are being placed in some cases.

Chace Mill at Fall River, Mass., is changing part of its production into fine goods, requiring new machinery, including 500 automatic looms, new combers, spinning and carding machinery. To meet demand for heavier types of machinery, frequent alterations to old mill buildings are needed.

New Bureau To Enforce Scrap Ethics

The code of business practices, consisting of 12 resolutions adopted at the national conference of the scrap iron and steel industry in Pittsburgh May 23, has been accepted by the federal trade commission, with the exception of one resolution. The resolution which was disapproved was the matter of enforcement, for which the trade commission looks to the industry itself. These resolutions were printed on page 1509 of IRON TRADE REVIEW for May 30.

The resolutions become effective as of July 26, the date the commission published its official report. The Institute of Scrap Iron and Steel Inc., New York, which sponsored the trade practice conference, has set up a trade relations bureau to receive reports, conduct supplementary investigations, and make recommendations as to the disposition of each case raised in conjunction with the resolutions.

On the trade relations committee are Charles Dreifus, Pittsburgh; chairman; Charles Bock, Buffalo, co-chairman; Joel Claster, Reading, Pa.; Harry Ehrlich, Springfield, Mass.; Joseph G. Hitner, Philadelphia; Herman D. Moskowitz, New York; John R. Briggs, Philadelphia; George B. Doane, Boston; Ben Cohen, Wilkes-Barre, Pa.; Joseph Maher, Buffalo; Carl R. Briggs, Blue Island, Ill.; Camuel N. Summer, Columbus, O.; and Morris Speer, Cleveland. Joseph Colvin will be secretary of the bureau.

Use of the X-ray in the determination of the mineralogic composition of powdered samples of commercial firebrick is discussed in bulletin No. 193, issued by the engineering experiment station of the University of Illinois, Urbana, Ill. The title of the booklet is "An X-ray Study of Firebrick" and material for it was compiled by Albert E. R. Westman, research associate in ceramic engineering.

Obituaries

WILLIAM PIGOTT, 69, chairman of the board of the Pacific Coast Steel Co., Seattle, and one of the pioneers in the Pacific coast steel industry, died at Vancouver, B. C., July 19 after a 7-day illness which followed a heart attack. He was born in New York but was educated in the public and parochial schools of Hubbard, O., where he obtained his initial employment at

WILLIAM PIGOTT

a blast furnace. He later removed to Pueblo, Colo., where he became superintendent of the merchant mills of the Colorado Fuel & Iron Co. In 1894 he located in Seattle and with the late S. D. Hofius laid the foundations for the Seattle Steel Co., organized in 1904. Two years previously he had purchased the present site of the Pacific Coast Steel Co. in West Seattle, with which the Seattle Steel Co. was merged. The year following he organized the Seattle Car Mfg. Co., now the Pacific Car & Foundry Co. While at the time of his death he held no official position with this latter company, he owned a large financial interest in it.

Mr. Pigott was active in the development of foreign trade, taking a prominent part in the organization of the Pacific Foreign Trade council, of which he was president. He was active in the campaign for the governmental construction of the Alaska railroad and was a leader in bringing the Alaska-Pacific-Yukon exposition to Seattle in 1909.

* * *

John Feltes, vice president, Standard Electrical Tool Co., Cincinnati, died at his home in Cincinnati, July 24.

* * *

Allan C. Hoffman, 56, executive vice president of American Cirrus Engines Inc., died at his home in Englewood, N. J., July 28.

* * *

C. R. Crawford, vice president, Landis Machine Co. and of Moon Bros. Mfg. Co., St. Louis, died at St. Louis July 22. He was 64 years old.

* * *

James Forstedt, 77, chief engineer of the old Washburn & Moen Co., forerunner of the American Steel & Wire Co., of Worcester, Mass., died in Sweden recently.

* * *

Louis L. Satler, for the past five years metallurgist of the Allegheny Steel Co., Breckenridge, Pa., died July 25 at Philadelphia. He was graduated from the Carnegie Institute of Technology, Pittsburgh, in 1909.

* * *

Louis Wakeman Penfield, formerly head of the Hadfield-Penfield Steel Co., with plants at Bucyrus and Willoughby, O., and well-known during the world war for his part in the manufacture of munitions, died at his home in Willoughby, July 29. He was 72.

* * *

John S. Turner, 70, member of the sales organization of the Pressed Steel Car Co., New York, since 1904, died July 15 at his home in Brooklyn, N. Y. He was employed by various railroads for about 25 years and in 1901 he entered the sales department of the Standard Coupler Co. A few years later he became identified with the Pressed Steel Car Co.

* * *

William Dill, owner of the Dill Foundry Co., Rushville, Ind., died July 7. From 1898 until 1901 he was city engineer of Rushville. From 1919 to 1920 he was employed by the Charles E. Francis Co. as mechanical engineer and draftsman. In 1920 he designed and built the gray iron foundry of which he was owner and manager at the time of his death. He was a member of the American Society of Mechanical Engineers and the American Foundrymen's association.

Current Statistics of Industry

June Foundry Equipment Orders Highest

Cleveland, July 30.—June orders for foundry equipment continued high, with little change from May, but showing the highest June since the Foundry Equipment Manufacturers' association began compiling statistics. June shipments were 172.7, with unfilled orders 300.8 and gross orders for three months averaging 175.8, taking the average of 1922-1924 as 100. Monthly comparisons of orders follow:

	1926	1927	1928	1929
Jan.	168.2	180.4	132.7	180.5
Feb.	154.9	198.0	123.6	197.0
Mar.	157.3	131.1	138.6	209.4
Apr.	113.2	130.1	107.7	172.6
May	128.5	134.8	325.6	177.7
June	133.5	138.4	149.1	177.3
July	127.3	89.9	94.8	.....
Aug.	141.2	106.4	278.0	.....
Sept.	114.0	80.4	170.0	.....
Oct.	140.5	98.0	185.0	.....
Nov.	133.4	95.8	197.8	.....
Dec.	181.0	106.8	166.5	.....

Base: Average monthly shipments for 1922-25-24.

Shape Shipments Lower

Washington, July 30.—Shipments of structural shapes in June at 273,350 show a decline from May but were higher than June, 1928. For the first six months of the year a decided increase is noted compared with the same period of 1928. Department of commerce monthly comparison follow:

	—New orders—			Shipments
	Actual	% of	Computed	Computed
1928	tonnage	capacity	tonnage	capacity
June	249,679	77	296,450	261,800
Six mos.	.....	68	1,570,800	1,424,500
July	247,343	77	296,450	265,650
Aug.	295,431	92	354,200	288,750
Sept.	266,269	83	319,550	273,350
Oct.	210,454	65	250,250	319,550
Nov.	203,760	63	242,550	273,350
Dec.	207,499	64	246,400	281,050
Year	.....	71	3,280,200	3,126,200
1929				
Jan.	227,103	71	273,350	281,050
Feb.	222,723	70	269,500	238,700
Mar.	*296,413	93	358,050	277,200
Apr.	†275,736	87	334,950	304,150
May	‡280,306	90	346,500	311,850
June	§296,154	92	354,200	273,350
Six mos.	.....	84	1,936,500	1,686,300

*Reported by 234 firms with a capacity of 319,750 tons.
†Reported by 229 firms with a capacty of 316,030 tons.
‡Reported by 223 firms with a capacity of 312,780 tons.
§Reported by 202 firms with a capacity of 322,295 tons.

Record Stoker Sales

Washington, July 30.—Sales of mechanical stokers in June were the highest of any month this year or 1928. Comparing the figures for the first six months with the same period in 1928, a substantial increase is noted. Department of commerce comparisons follow:

	Stokers sold	Fire tube boilers	Water tube boilers
1928			
June	162	78	84
Total (6 mo.)	663	219	444
July	186	67	119
August	162	57	105
September	161	68	93
October	100	48	52
November	116	54	62
December	102	34	68
Total (year)	1,490	547	943
1929			
January	97	36	61
February	80	26	54
March	117	42	75
April	141	41	100
May	174	64	110
June	203	82	121
Total (6 mo.)	812	291	521

River Traffic Heavier than in 1928

Pittsburgh, July 30.—River shipments of iron and steel products in the Pittsburgh district gained sharply during June, according to figures just issued by the United States engineer office. June totals for each of the three rivers was the largest for any month so far this year and showed gains for the Monongahela and Ohio rivers compared with June of last year.

The total movement for the first six months of this year over all three rivers was larger than in the corresponding 1928 period. Comparative monthly figures in tons follow:

1929	Allegheny	Monongahela	Ohio
January	.....	80,402	48,471
February	.....	83,358	72,203
March	25	93,627	92,040
April	210	99,067	105,472
May	525	88,340	102,162
June	722	116,157	116,679
Total 6 mos.	1,482	560,941	537,027
1928			
January	330	78,069	69,750
February	385	73,360	87,635
March	725	77,908	77,945
April	470	87,581	110,356
May	1,863	86,722	112,818
June	2,350	75,422	98,156
Total 6 mos.	6,123	479,102	555,660
July	.....	91,834	90,145
August	50	109,738	124,066
September	200	136,227	125,062
October	1,130	131,281	130,808
November	800	143,238	137,019
December	.....	79,595	78,213
Total	8,303	1,160,975	1,239,973

From 1919 to 1928 fuel briquet production in the central states increased 313 per cent.

Barrel Output High But Is Declining

Washington, July 30.—Although June production of steel barrels declined from the high mark set in May, it was the second best month of the year as reported by 27 companies operating 31 plants to the department of commerce, being 774,853 or 61.8 per cent of capacity, compared with 72.0 per cent in May and 61.4 in June, 1928. Comparisons follow:

			Unfilled orders for delivery	
1928	Production	Shipments	within 30 days	beyond 30 days
June	712,779	717,496	319,443	840,313
Tot., 6 mo.	3,708,592	3,707,330	.....	.....
July	647,844	645,881	341,346	891,066
Aug.	677,313	675,600	319,495	744,863
Sept.	593,255	595,640	292,686	704,134
Oct.	656,021	661,009	301,782	522,090
Nov.	563,647	568,353	322,135	634,982
Dec.	551,113	549,913	246,460	1,110,983
Total (year)	7,397,784	7,403,726	.....	.....
1929				
Jan.	558,492	548,581	319,704	1,342,006
Feb.	567,398	563,532	345,365	1,198,481
Mar.	742,165	743,407	393,941	1,076,317
April	771,584	775,481	333,614	935,430
May	836,532	834,699	316,882	899,090
June	774,853	779,567	644,079	904,920
Tot. 6 mo.	4,251,024	4,245,267	.....	.....

Babbitt Sales Higher

Washington, July 30.—June sales of babbitt for apparent consumption show an increase from May, although consumption by producers declined in the same period. Comparison of the first six months total with the same period of 1928 shows an increase of apparent consumption of over 7,000,000 pounds, according to the department of commerce. Monthly comparisons follow:

	Total apparent consumption	Sold by manufacturers	Consumption by producers
	(Figures given in pounds)		
1928			
June	4,731,023	3,625,347	1,105,676
Total (6 mo.)	28,507,097	22,309,577	6,197,520
July	4,692,825	3,816,707	938,955
August	4,755,662	3,843,680	911,982
September	5,308,403	4,309,004	999,399
October	5,796,419	4,605,179	1,191,240
November	5,630,417	4,356,670	1,273,747
December	4,985,942	4,148,601	837,341
Tot. (1928)	59,676,765	47,338,625	12,338,140
1929			
January	6,093,267	4,876,506	1,216,761
February	5,720,243	4,695,669	1,024,574
March	6,465,613	5,171,047	1,294,566
April	6,046,445	4,857,258	1,189,187
May	*5,478,697	4,248,662	1,230,035
June	5,927,907	4,820,953	1,106,954
Total (6 mo.)	35,732,172	28,618,739	7,113,433

*Revised.

Here and There in Industry

Timely Information Which Records Developments in Various Lines of Productive Enterprise

FARRELL-CHEEK STEEL FOUNDRY CO., Sandusky, O., is completing an addition to its plant, 60 x 100 feet, to house special steel operations. The addition is expected to be ready for production by Sept. 1. It became necessary in spite of the fact that capacity had been doubled in November, 1928. The core room of the foundry has been enlarged to three times its former size. Numerous additions have been made in the past six months, and others are under consideration and may eventuate soon.

* * *

BELL FURNACE & MFG. CO., Northville, Mich., has been bought by Sherrill Ambler, who will continue production and develop larger output.

* * *

M & M. WIRE CLAMP CO., Minneapolis, has moved its offices and works to 983 Seventeenth avenue, S. E.

* * *

STEVENS & WOOD, engineers and constructors, have moved their headquarters from 20 Pine street, to 60 John street, New York.

* * *

CLEVELAND CHAIN & MFG. CO., Cleveland, is building an extension to its plant and enlarging its offices to care for increased demand for welded and weldless chain.

* * *

KEMPSMITH MFG. CO., Milwaukee, manufacturer of milling machines, has appointed the L. A. Benson Co., Baltimore, its distributor in Maryland.

* * *

MINNEAPOLIS ELECTRIC STEEL CASTINGS CO., 3800 Fifth street N. E., Minneapolis, has completed an addition containing 12,000 square feet to its productive area.

* * *

POWER KING DRILL CO., Warsaw, Ind., has consolidated with the Portable Power Tool Co., Cincinnati, and the plant of the latter will be removed to Warsaw.

* * *

TRACTION FOUNDRY & MACHINE CO., LaPorte, Ind., has been formed to conduct a foundry business and has taken over a foundry building there, which is being reconditioned and equipped to produce gray iron and semisteel castings.

* * *

WEAN ENGINEERING CO. INC., recently organized by R. J. Wean and associates, has established its offices in the Second National Bank building at Warren, O.

* * *

CHICAGO PUMP CO., Chicago, has changed its representation at Portland, Oreg., and the territory has been placed under supervision of D. R. Munro, 201 Lumberman's building, Portland.

* * *

DANLY MACHINE SPECIALTIES INC., Chicago, manufacturer of die sets and parts, has established a branch on East Forty-ninth street, Cleveland, in charge of J. R. Fitzsimmons.

* * *

DESPATCH OVEN CO., Minneapolis, has appointed the Industrial Engineering & Equipment Co., 1341 Syndicate Trust building, St. Louis, its district representative for Missouri and southern Illinois.

* * *

LANDIS MACHINE CO., Waynesboro, Pa., manufacturer of thread cutting machinery, has opened an office at 504 Marshall building, Cleveland, in charge of J. T. Benchoff, district manager.

* * *

AMERICAN ABRASIVE METALS CO., Newark, N. J., has completed a 50 x 75-foot addition to its foundry, for use as a finishing and shipping department. It is being equipped with grinding wheels, electric torches, and similar equipment.

* * *

DURALOY CO., Pittsburgh, has installed a 1½-ton electric furnace at its plant at New Cumberland, W. Va., for the production of chrome alloys. Additions have been made to its machine shop, facilitating output of machined chrome alloy castings.

* * *

DAILEY-LOCKWOOD INC., Twenty-second and Westmoreland streets, Philadelphia, has been incorporated by H. P. Dailey, president, and J. B. Lockwood, secretary and treasurer, to operate a steel warehouse and act as distributor for miscellaneous metal specialties. A stock will be carried in warehouse to afford immediate shipment where direct mill shipment is not sufficiently prompt. It will consist of full pickled and autobody sheets, reselected seconds in autobody sheets and selected lower grade sheets. The company will carry its own accounts and will not be manufacturers' agent.

* * *

ROBBINS & MYERS INC., Springfield, O., will reopen its plant at Xenia, O., which has been idle since 1921. Fans and motors will be manufactured.

* * *

SOUTH BEND LATHE WORKS, South Bend, Ind., has appointed Reliance Machinery Sales Co., 1407 Brighton road, Pittsburgh, distributor of its back-geared screw-cutting lathes in the Pittsburgh district. Complete stock will be carried.

* * *

GEOMETRIC TOOL CO., New Haven, Conn., has appointed the Rudel-Ryder Machinery Co. Ltd., 159 Bay street, Toronto, Ont., exclusive sales agents in Ontario for its self-opening dies, collapsing taps and threading machines. The company formerly was represented by the F. F. Barber Machinery Co.

* * *

WESTERN STEEL PRODUCTS LTD., Regina, Sask., has completed its new plant and is occupying it. Both office and factory space are fireproof, with special provisions for daylighting and ventilation. Additions to the plant already are under consideration to accommodate increasing business.

* * *

FULTON IRON WORKS CO., St. Louis, has been awarded the contract to equip a sugar refinery to be built at Villa Juarez, Tamaulipas, Mexico, near Tampico, according to advices from Tampico. The refinery will represent an investment of 4,000,000 pesos ($2,000,000). The project is being backed by American, British and Mexican capital.

* * *

RHEEM MFG. CO., Emeryville, Calif., has completed an addition to its plant, 87 x 320 feet, and is installing machinery to increase its pro-

duction of steel barrels and containers, oil and service station equipment. The company is a partnership of D. L. Rheem and R. S. Rheem and represents the United States Air Compressor Co., Cleveland, and the Oil Products Appliance Co., Maywood, Ill.

* * *

THEW SHOVEL CO. and Universal Crane Co. have moved their offices at Pittsburgh to suite 1806 Benedum-Trees building, 221 Fourth avenue.

* * *

YOUNGSTOWN SHEET & TUBE CO., Youngstown, O., has opened a sales promotion office at 905 Exchange Bank building, Tulsa, Okla., in charge of J. A. Mussler.

* * *

MANUFACTURING FINISHING CO. INC., Waterbury, Conn., has been organized to engage in electroplating and other forms of brass goods manufacturing.

* * *

MAHONEY-RYAN AIRCRAFT CORP., St. Louis, has changed its name to Ryan Aircraft Corp. Following recent consolidation of this company with Detroit Aircraft Corp., Edward S. Evans has succeeded Phil Dec. Ball as president.

* * *

PERFEX CORP., Milwaukee, has been given a large contract by Allis-Chalmers Mfg. Co., for tractor radiators, specially designed for use on products of the United Tractor & Equipment Corp. The radiators are of staggered tube, supercooling type.

* * *

AMERICAN ROLLING MILL CO., Middletown, O., is rolling ingot iron sheets for 1000 all-metal box cars for the Pennsylvania railroad. This material is specified to reduce maintenance costs and corrosion loss. The sheets are being rolled on the new continuous mills of the American company.

* * * *

HAMILTON BRIDGE CO., Hamilton, Ont., has taken over the site and plant of the Dominion Shipbuilding Co. at Toronto, Ont. It will be adapted to needs of the structural operations of the new owners, who have considerable tonnage of steel to be fabricated for the Toronto district. Ability to obtain steel by boat from Chicago and other lake ports is a factor in choice of this location. Officers of the company are: James Playfair, Midland, chairman of the board; W. I. S. Hendrie, president; F. M. Ross, vice president; W. B. Champ, vice president and managing director; A. E. Martin, treasurer, and F. G. Wilson, secretary. Directors are: W. E. Phin, Major General Hon. S. C. Mewburn, J. C. Newman, Frank Ross, V. M. Drury, James A. Richardson, George Cottrelle and the officers mentioned above. R. K. Palmer is chief engineer and J. P. Mantle is manager of sales.

* * *

UNIT CORP. OF AMERICA, 5301 Burnham street, Milwaukee, manufacturer of gears, transmissions and other automobile, truck and tractor specialties, which recently took over the Universal Power Shovel Co., Detroit, has broken ground for a new plant unit at Milwaukee, 100 x 225 feet, for the use of the Universal division. W. H. Schmidt is president of the Unit Corp.

* * *

EDWARD IRON WORKS, South Bend, Ind., is adding four buildings to its plant, increasing capacity sixfold. The additions are expected to be ready for use by Oct. 1. W. H. Edwards is president. Two warehouse buildings are being erected, with capacity of 4000 tons of steel. One is 80 x 562 feet with a 15-ton crane of 72-foot span. The other is 40 x 360 feet with 5-ton crane. The fabricating shop is 186 x 325 feet. Eight cranes will be installed in this shop.

* * *

E GARGANI & SONS INC., Brooklyn, N. Y., has been organized to operate a statuary bronze foundry. A long term lease has been secured on a foundry building at 100-108 Probost street, to which extensive alterations and improvements have been made. The company will employ the Cire Perdue process, and will be in position to execute statuary up to the largest equestrian sizes. Eugene Gargani is president and Guido Gargani vice president.

* * *

VALLEY FORGE STEEL & TOOL CO., 622 West Monroe street, Chicago, manufacturer and dealer in tool steels, metal cutting tools, and similar equipment, has purchased property at Monroe and Jefferson streets, Chicago, containing a 6-story store and loft structure. After extensive alterations the firm will occupy about one-third of the building. The company was organized in 1920 and it has been found necessary to move four times to larger quarters.

* * *

DAVIES & THOMAS CO., Catasauqua, Pa., has been granted a license to manufacture, sell and use the patented processes for making Perlit iron castings, as discovered, researched and developed by the following German companies: A. Borsig G.mb.H. Berlin-Tegal; Maschinenfabrik Esslingen, Esslingen; Heinrich Lanz A. G., Mannheim; Vereignigte Stahlwerke A.G.; Schalker Verein, Gelsenkirchen. These are the licensors and William Sargent, 60 Park place, Newark, N. J., is colicensor for the United States. Preparations are being made for manufacture of castings by this process.

* * *

NATIONAL CONCRETE METAL FORMS CO., Newark, N. J., manufacturer of metal forms used in concrete construction, has leased 20,000 square feet at 6510 West Sixty-sixth place, Chicago. The property is served by the Chicago Belt line railroad, and is understood a plant will be erected at that point. The present Chicago plant of the company is at 2300 West Fifty-eighth street.

* * *

MILWAUKEE CIRCULATING PUMP & MFG. CO., 331 Ninth street, Milwaukee, specializing in water systems for internal combustion engines, has been reorganized as the Hein-Werner Motor Parts Corp., and will soon move its plant and offices to Waukesha, Wis. S. A. Perkins, secretary and treasurer of the Waukesha Motor Co., has acquired a substantial interest and is building a new plant for its use near the motor works, 175 x 300 feet, with a 2-story section for offices, and will cost about $200,000 complete. Richard V. Werner is secretary.

* * *

STEVENS WALDEN INC., Worcester, Mass., has been formed to take over the business of the Stevens Walden-Worcester Wrench Co., following agreement between bondholders and unsecured creditors' committee. Directors of the new company will be: Clarence C. Dodge, manager of George F. Blake Jr. & Co.; Frank J. Weschler, president and treasurer, Baldwin Chain & Mfg. Co.; Anton W. Schneider, works manager, Reed & Prentice Corp.; Homer W. Bleckley, receiver of Stevens-Walden-Worcester Inc.; and George W. Fleming, presiden of Fleming Machine Co.

* * *

MOTO-METER GAUGE & EQUIPMENT CO., division of the MotoMeter Corp., Long Island City, N. Y., which last September purchased the common stock in the National Gauge & Equipment Co., LaCrosse, Wis., has now acquired all of the preferred stock, held principally by P. M. Gelatt, LaCrosse, who founded the business in 1915. Mr. Gelatt, is retiring as president, to be succeeded by P. G. Martin of New York. The concern manufactures a complete line of dashboard equipment for automobiles, including gasoline gages, ammeters, temperature indicators, pressure gages, fuel and lubricant level gages, etc.

British Pig Iron Prices Stronger

Orders for Railroad Rolling Stock and Structural Shapes Increasing—Continental Steel Manufacturers Offering More Competition

European Headquarters,
IRON TRADE REVIEW,
Caxton House, Westminster, S. W.1

LONDON, July 30.—(*By Radio*)—Pig iron producers in the Midland have increased prices 2s 6d ($0.49) per ton. Middlesbrough iron is unchanged, but an expected advance has stimulated buying. East coast hematite producers are reserving decision on prices. The Barrow hematite situation is satisfactory and prices are steady. Pig iron exports generally are quiet.

Dorman, Long & Co. have booked a contract for a memorial bridge at Bangkok, requiring 1100 tons of steel. Numerous orders have been obtained for railroad rolling stock for export. Domestic structural steel business is improving. Manufacturers of finished steel on the Continent are competing more strongly, especially for tin plate and steel bars. The British market for tin plate is dull, and demand for galvanized sheets has not shown much improvement.

A report from Brussels states Belgian iron and steel markets are becoming unsatisfactory, inquiries diminishing and prices falling. Railroads are placing orders for rails, and competition from British mills is noted. Business in France is quieter, though steelworks are well occupied. Comptoirs are maintaining prices at steady levels.

Berlin reports export prices fluctuating, though steel bars remain at £5 16s ($28.13). Independent manufacturers are offering wire rods at £6 4s ($30.07).

Quickening Is Felt in British Steel Market

BIRMINGHAM, Eng., July 19.—The industry is unusually active for the season of the year. In raw products there is naturally some falling off in buying. Both in the Midlands and Middlesbrough consumers have covered requirements well forward and are not likely to place substantial business this side the holiday. Midland prices are firm, some furnaces being able to command small premiums over recognized rates and and while some iron can be bought at the minimum laid down by the association it is impossible to obtain supplies below that level.

Sterling $4.85

A revival of activity in constructional engineering is a feature of the Midland market. Firms who have been slack in first half have felt a renewal of inquiry and orders.

The Butterley Co., Codnor Park, Nottingham, has the steelwork for 35 bridges required for the new joint railway of the London Midland & Scottish and the London & North Eastern railways in the Mid-Nottingham coalfield in connection with electrification of the Manchester South Junction & Altrincham railway, to be carried out on an estimated cost of £500,000. This line will be served by entirely new rolling stock electrically equipped by the General Electric Co., Witton, Birmingham. There are also a number of super cinemas and cinemas being erected in all parts of the country, but the latter are de-

Current Iron and Steel Prices of Europe

Dollars at Rates of Exchange, July 29	*British* Gross Tons U. K. Ports		*French* Metric Tons Channel Ports		*Belgium and Luxemburg* Metric Tons Channel Ports		*German* Metric Tons Rotterdam or North Sea Port	
Export Prices f. o. b. Ship at Port of Dispatch—By Cable								
PIG IRON		£ s d		£ s d		£ s d		£ s d
Foundry No. 3, Silicon 2.50-3.00	$17.58	3 12 6*	$17.46	3 12 0	$17.46	3 12 0	$17.46	3 12 0
Basic	16.61	3 8 6	17.10	3 10 6	17.10	3 10 6	16.73	3 9 0
Basic-bessemer	17.58	3 12 6†	17.10	3 10 6	17.10	3 10 6	16.73	3 9 0
Hematite, Phosphorus 0.02-0.05	17.95	3 14 0	24.76	630*	.....	.....	17.70	3 13 0
SEMIFINISHED STEEL								
Billets	$32.13	6 12 6	$24.74	5 2 0	$24.74	5 2 0	$24.95	5 7 0
Wire rods	41.83	8 12 6	30.92	6 7 6	30.92	6 7 6	30.07	6 4 0
FINISHED STEEL								
Standard rails	$40.01	8 5 0	$31.53	6 10 0	$31.53	6 10 0	$31.53	6 10 0
Merchant bars	1.79c	8 5 0	1.25c	5 13 6	1.25c	5 13 6	1.28c	5 16 0
Structural shapes	1.60c	7 7 6	1.15c	5 4 3	1.15c	5 4 3	1.14c	5 4 0
Plates, ship, bridge and tank	1.76c	8 2 6	1.41c	6 7 9	1.41c	6 7 9	1.40c	6 7 0
Sheets, black, 24 gage	2.17c	10 0 0	2.37c	10 15 0	2.37c	10 15 0	2.33c	10 12 0
Sheets, galvanized, 24 gage, corrugated	2.90c	13 7 6	3.01c	13 13 9	3.01c	13 13 9	3.08c	14 0 0
Bands and strips	2.17c	10 0 0	1.31c	5 19 6	1.31c	5 19 6	1.32c	6 0 0
Plain wire, base	2.06c	9 10 0	1.65c	7 10 0	1.65c	7 10 0	1.69c	7 14 0
Galvanized wire, base	2.93c	13 10 0	2.12c	9 12 6	2.12c	9 12 6	2.13c	9 14 0
Wire nails, base	2.39c	11 0 0	1.76c	8 0 0	1.76c	8 0 0	1.79c	8 3 0
Tin plate, base box 108 pounds	$ 4.43	0 18 3	.....	.....	.....	....	$ 8.97	1 17 0

*Francs

Domestic Prices at Works or Furnace—Last Reported			Francs		Francs		Marks	
Foundry No. 3 Pig Iron, Silicon 2.50-3.00	$17.58	3 12 6	$18.66	475(2)	$17.24	620	$20.26	85
Basic pig iron	16.61	3 8 6	20.04	510(1)	17.10	635	21.69	91
Furnace coke	3.76	0 15 6	6.29	160	5.84	210	5.13	21.50
Billets	32.13	6 12 6	24.36	620	24.60	885	28.85	121
Standard rails	1.79c	8 5 0	1.46c	810	1.63c	1,250	1.51c	140
Merchant bars	1.84c	8 10 0	1.36c	755	1.36c	1,045	1.52c	141
Shapes	1.76c	8 2 6	1.26c	700	1.24c	950	1.49c	138
Plates, ship, bridge and tank	1.93c	8 17 6‡	1.49c	790	1.48c	1,140	1.71c	158
Sheets, black, 24-gage	2.28c	10 10 0	2.87c	1,595	2.73c	2,100	2.43c	225
Sheets, galvanized 24 gage, corrugated	2.93c	13 10 0	3.68c	2,045	3.58c	2,750	3.78c	350
Plain wire	2.06c	9 10 0	2.03c	1,125	2.15c	1,650	2.48c	230
Bands and Strips	2.17c	10 0 0	1.51c	840	1.53c	1,175	1.77c	164

*Middlesbrough; †Scotch foundry iron; ‡delivered; (1) Basic-bessemer; (2) Longwy. British export furnace coke £0 15s 6d ($3.76) f. o. b. Ferromanganese £21 13s, 0d ($105.00) delivered Atlantic seaboard, duty-paid. German ferromanganese £15 0s 0d ($72.75) f. o. b.

The equivalent prices in American currency are in dollars per ton for pig iron, coke, semi-finished steel and rails; finished steel is quoted in cents per pound and tin plate in dollars per box. British quotations are for basic open-hearth steel; French, Belgian, Luxemburg, and German are for basic-bessemer steel.

scribed by structural engineers as a very cut line to be avoided if possible.

Weakness of Continental material indicated by a drop of 2s 6d ($0.60) last week in light steels and semis, developed further at Birmingham yesterday. It was possible to buy No. 3 Belgian iron at £6 17s 6d ($33.33) and steel bars at the same price, while 2-inch billets could be had from various Continental sources at £6 2s 6d ($29.70). Merchants are anxious to sell as trade is quiet in these lines and they would not miss an order for the sake of 1s ($0.24) or so. English works have so far held their ground so that the gap is widening between home and foreign products. But no doubt the warning will be taken to heart that they cannot afford to ignore Continental competition. The menace is never so great in the Midlands, owing to the additional charges of carrying from the port, the districts chiefly affected being South Wales, London and the northeast coast. Nevertheless good trade is carried on from Birmingham with Continental producers.

The galvanized sheet trade continues one of the weakest sections of the market. Prices are low at £13 7s 6d ($64.85) and mills could take much morework if production is to be maintained. Shipments in June fell to 43,000 tons from 71,000 tons in the previous month, although the first half showing is better than the corresponding period of 1928. Similarly in tin plate quiet has settled upon the trade and the endeavor to obtain lower prices is not encouraged in view of the upward movement in tin. Profit making whether in tin plate or galvanized sheets is difficult on the present standard of selling prices. The steel scrap market has quieted, and here again there is pressure on the part of consumers for lower selling rates.

British Output Heavier in First Half

London, July 15.—(*European Staff Service*)—Provisional statistics issued by the National Federation of Iron and Steel Manufacturers indicate that production of pig iron and steel in Great Britain during first half was higher than in the corresponding period of 1928. During the period considered the production of pig iron was 3,597,900 gross tons, as compared with 3,422,200 tons in first half of 1928, an increase of 5.3 per cent. Excepting in January, the monthly production of pig iron has increased without a break since the beginning of the year, the highest figure being attained in June. Output for June this year was the highest monthly tonnage since May, 1927, and according to present indications it may be expected that production during the coming months will increase still further.

The output of steel ingots and castings during first half showed a still greater increase than for pig iron and attained 4,879,300 gross tons, as against 4,289,700 tons for first half of 1928, an increase of 13.7 per cent.

Production of steel showed greater fluctuations than pig iron. The highest monthly figure was reached in March, the lowest monthly output for the year to date being in January. The output of March this year has not been exceeded since May, 1927.

Figures are as follows:

Mon. ave.	Act. Fur. on last day	Pig iron	Steel ingots and castings
1913	*338	855,000	638,600
1926	78	204,800	299,700
1927	149	607,700	758,100
1928	132	550,900	710,400
1929			
Jan.	139	563,900	764,600
Feb.	140	519,600	774,900
March	145	590,500	859,900
April	152	611,300	808,600
May	159	654,800	840,400
June	165	657,800	830,900

*Average for year.

Belgian Imports and Exports Gain

Brussels, July 16.—(*European Staff Service*)—Imports of pig iron into Belgium and Luxemburg in April reached the highest figure recorded, 60,267 metric tons, the previous high mark having been attained in December, 1928, with 59,044 tons.

Exports of iron and steel products in April reached the highest figure for the year with 428,000 metric tons. April exports consisted chiefly of plates and sheets, 53,434 tons; shapes, 52,057 tons; wire, 35,941 tons; semi-finished steel, 35,841 tons; rails, 19,602 tons; hoops and bands, 17,161 tons. In the total also was included 28,062 tons of scrap. The following table gives comparisons in metric tons:

	IMPORTS		EXPORTS	
Mon. ave.	Pig iron	Other iron and steel	Pig iron	Other iron and steel
1926	27,505	28,000	13,105	305,000
1927	31,760	28,000	11,350	388,000
1928	45,910	38,000	8,240	380,000
1929				
Jan.	51,705	46,000	7,804	269,000
Feb.	37,571	40,000	7,064	291,000
March	53,944	38,000	8,810	398,000
April	60,267	45,000	7,157	428,000

French Steelmakers Seek Outlet in Exports To Keep Mills Busy

PARIS, July 16.—(*European Staff Service*)—There is no change in the condition of the French iron and steel markets. The volume of business is small and there is no indication of quick revival. With the usual slackness during the holiday season it is likely the present tendency will be maintained until September or October. In addition, there are uncertainties, chiefly economical, in the industrial situation. The world output of steel expanded during last year, and all the producing countries have maintained their capacities for the present year. At present, however, European domestic markets are not so active and many works are selling abroad. France has exported 49 per cent of its output, but as domestic consumption seems to be seriously curtailed, it will be necessary soon to export a higher percentage. At present it is fairly easy to get good prices on export trade, but the trend of export prices is downward. Competitive countries are assisted by their governments: British industries receive subsidies; Germany tries to lighten the burden of industrial charges; the United States is increasing its tariff duties. In France, however, nothing is done, and the cost of living is always increasing.

Franc—3.91c

Semifinished products are active and prices quoted by the A-products comptoir are unchanged. Orders for finished materials have slackened somewhat and time of delivery is steadily being reduced. It is possible for purchasers to obtain rebates on general prices for large and interesting orders. This also is the case in regard to angles. The basis price for steel merchant products is 740 to 770 francs ($29 to $30.20) in the east, with two or three months' delivery, but it is easy to obtain 710 francs ($27.80) for angles and 720 to 730 francs ($28.20 to $28.50) for reinforced concrete rounds.

The home market for plates and sheets is firmer, as it is governed by the constitution of the new comptoir, which will commence operations July 20, but an agreement already has been reached with regard to prices, it having been decided to fix them as follows: thick plates, 900 francs ($39.20) f.o.t. Paris; medium-sized plates, 980 francs ($38.35) f.o.t. Paris; thin plates, 1240 francs ($48.50) f.o.t. Paris. The wire products market is unsatisfactory.

French Production High

Paris, July 16.—(*European Staff Service*)—Output of pig iron in France in May was the highest since January. It included 681,000 tons of basic bessemer, 115,000 tons of phosphorus foundry, 12,000 tons of semi-phosphorus, 31,000 tons of hematite foundry, 42,000 tons of hematite gray forge pig iron and 16,000 tons of ferroalloys.

Output of steel in May included 801,000 tons of ingots and 18,000 tons of steel castings. May output of steel was composed of 560,000 tons of basic bessemer, 236,000 tons of open-hearth, 7300 tons of acid bessemer, 1700 tons of crucible and 14,000 tons of electric steel. The following table gives comparisons in metric tons:

Mon. ave.	Act. Fur. on last day	Pig iron	Steel ingots and castings
1913	131	433,940	390,580
1926	155	785,965	702,500
1927	142	774,785	689,610
1928	153	841,415	782,995
1929			
Jan.	157	904,000	842,000
Feb.	157	782,000	743,000
March	156	880,000	805,000
April	158	871,000	810,000
May	157	897,000	819,000

CONSTRUCTION and ENTERPRISE

Concise Timely Business Building Opportunities from Field of Industry

North Atlantic

BALTIMORE—Reid-Avery Co., Cleveland and Chesapeake avenues, manufacturer of welding rods, has plans for a 1-story plant addition, 50 x 210 feet.

BRAINTREE, MASS.—P. Wynot, Commercial street, has plans for building a service and repair garage to cost about $40,000. L. S. Joslin, 339 Newbury street, Boston, is architect.

CAMBRIDGE, MASS.—C. J. Cox Engineering Co., (heating and ventilating) 625 Putnam street, has awarded contract for a 1-story plant addition to J. C. Pitcher, 46 Crownhill street, Boston.

FAIRHAVEN, MASS. — Fairhaven Iron Foundry, 2 Water street, has awarded a contract for rebuilding one and 2-story plant, 50 x 100 feet. (Noted June 6.)

WEST SPRINGFIELD, MASS.—Boston & Albany railroad, South Station, Boston, plans additions to its shops here. Estimated cost $500,000.

NEWARK, N. J.—Tung Sol Lamp Works Inc., 95 Eighth avenue, will soon start construction of a plant addition for manufacture of radio tubes, according to Harvey W. Harper, president.

NEWARK, N. J.—Western Electric Co. has leased properly at Tichenor and Hermon streets, which includes a 3-story and a 1-story building. The company will use premises for its tool-making department. Machinery is being installed.

BUFFALO—Fire July 27 caused $75,000 damage in the repair shop of the Stewart Motor Car Co., 93 Dewey avenue, truck manufacturers.

BUFFALO—Trico Products Corp., 817 Washington street, manufacturer of automobile accessories, is adding a sixth floor to its building, which will be used for manufacturing space. Estimated cost about $75,000. (Noted May 16.)

BUFFALO—The plant of the Irving Engineering Sales Co., 74 Jewett avenue, manufacturer of automobile dash boards and equipment, was recently damaged by fire. Estimated loss about $75,000.

HUDSON FALLS, N. Y.—Mohawk-Hudson Power Corp., 126 State street, Albany, N. Y., has taken over the power rights of the Union Bag & Paper Co. here, according to C. S. Ruffner, an official of the power corporation. A 75,000-horsepower plant will be constructed at a cost of about $6,000,000.

UTICA, N. Y.—Skenandoa Rayon Corp. has awarded contract for a steam power plant to the Aberthaw Construction Co., 80 Federal street, Boston. (Noted July 4.)

CANONSBURG, PA.—Canonsburg Steel & Iron Works is building a plant addition to cost about $60,000.

PHILADELPHIA—Grinnell Co. Inc., manufacturer of automatic fire sprinklers, has purchased property, 200 x 337 feet, at Erie avenue and D street, which it will improve with a plant building.

PHILADELPHIA—Atwater Kent Mfg. Co., Abbotsford road and Wissahickon avenue, which recently completed an addition, has plans for building another 1-story plant addition. Estimated cost about $1,500,000.

PITTSBURGH—Reliance Steel Castings Co., Twenty-eighth and Smallman streets, is having plans prepared for an office and foundry addition. Lake & Davidson, Negley building, are architects.

WILLIAMSPORT, PA.—Sweet's Steel Co. was recently damaged by fire. Estimated loss about $70,000.

SLATERSVILLE, R. I.—Slatersville Finishing Co., division of Kendall Mills Inc., 80 Federal street, Boston, is taking bids for a 1-story boiler plant, 55 x 85 feet. C. T. Main Inc., 201 Devonshire street, Boston, is engineer.

East Central

CHICAGO—Standard Stamping & Perforating Co., 4718 Fifth avenue, has acquired property at West Forty-ninth street and South Kedzie avenue, 145 x 150 feet, where it will build a new plant, which with equipment will cost about $70,000. (Noted June 27.)

CHICAGO—Louis E. Emerman & Co., 1761 Elston street, recently purchased property containing 5½ acres of the McCord Mfg. Co., 847 West 120th street. The buildings will be improved and equipped for production of remodeled and used machinery.

CHICAGO—Commonwealth Edison Co., 72 West Adams street, will build a substation on recently purchased property at Narragansett avenue and School street. This is one of a number of substations planned or under construction by the Commonwealth Edison Co.

CHICAGO—Industrial Power Corp., recently formed, will soon start construction of a low temperature distillation plant on property north of Thirty-fifth street on both sides of the Chicago river. A central power plant having approximately 100,000 kilowatt capacity is included. Estimated cost of project about $40,000,000. The Produce Terminal Corp., 4178 South Halsted street, is a subsidiary.

CHICAGO—Sessions Engineering Co., 228 North LaSalle street, will make additions and improvements to the plant of the former Whiteman & Barnes Co., 120th and Morgan streets, which has recently been purchased by an undisclosed syndicate that is forming a steel manufacturing company.

DECATUR, Ill.—Biflex Products Co., manufacturer of bumpers, etc., has let contract for a forge building, 150 x 160 feet. Equipment will be installed.

ROCKFORD, ILL.—Rockford Drop Forge Co., Ninth street, will soon award contract for a 1-story plant addition to cost about $150,000. (Noted May 2.)

ROCK ISLAND, ILL.—International Harvester Co., 606 South Michigan avenue, Chicago, has awarded contract for a 2-story boiler house for its works here. Estimated cost about $150,000.

STREATOR, ILL.—Anthony Co., manufacturer of dump bodies, has plans for construction of a 1-story plant addition, 60 x 300 feet. F. A. Randall, 222 North Wells street, Chicago, is engineer.

CAMBRIDGE CITY, IND.—Plant of the Mal-Gra Castings Co. was recently damaged by fire. Estimated loss about $30,000.

FORT WAYNE, IND.—George A. Jacobs and Wendell C. Glass, Fort Wayne, and associates, will organize a new company to manufacture magnet wire, windings and electrical specialties. The company will establish its main plant here. A branch plant at Los Angeles, is contemplated. Mr. Jacobs was president of the Dudlo Mfg. Co.

INDIANAPOLIS—General Motors Corp., Detroit, which recently took over the Allison Engineering Co., here, has started work on its $500,000 expansion program. (Noted May 9.)

WABASH, IND.—Wabash Foundry Co. has

(*Continued on Page* 309)

Machinery

July Business, Off Slightly From June, Exceeds Original Estimates—Sales for Export Are Large—Purchases by Railroads Lag

DUE largely to an increase in orders in the last two weeks, July sales of machine tools exceed expectations. Although the month's business is under that of June in most cases, outstanding inquiries and orders point to a continued healthy condition of the market. Airplane motor builders are planning expansions, Pratt & Whitney Co. already having issued a tentative list for new equipment, according to reports. Export trade in machine tools is a feature, especially to Russia where manufacturing interests have purchased and are inquiring for grinders, turret lathes and other tools. Railroad business continues to lag. Deliveries show no improvement. The general trend of prices seems to be upward. Crane awards are seasonally light.

New York, July 30.—While machine tool buying and inquiry is more spotty, most builders and dealers note no pronounced recession. Several report the last week in July more active. Buying is well spread. No improvement in delivery on standard machines is general. Railroads continue to lag, inquiries being infrequent for one and two units only. New York Central is in the market for a 52-inch boring machine and the Erie is asking for a shaper. Turret lathes are moving fairly well. One line of shapers has been advanced 10 per cent, but dealers in other lines report they have not followed the mark-up. Milling machinery is moving well, also lathes and automatics of all types. Machine motor plants are rushed with orders. The same holds true of ball bearing plants, gears and part makers. Demand for grinding machinery, while slowing up in spots two weeks ago, appears to have taken a spurt in the last week of the month, bringing July close to the June volume. There has been some drop in buying by airplane motor interests, but lists to be offered soon will be large. The new Pratt & Whitney expansion at East Hartford, Conn., will call for much equipment and a partial list has been offered tentatively, it is reported. The expansion program of the Wright airplane engine interests is reported to have been delayed until the fall. Eventually this engine maker will double production. General Electric still has a small list of tools out, and is a steady buyer, closing on three and four tools during the week. Export trade in grinding machinery is a factor in the sustained activity in this branch. One large maker of grinders moved close to 15 per cent of its sales this month to export, Russia and England taking various types of grinders. A large list of grinding machinery for Russia remains on inquiry with some orders being placed almost weekly. While July machinery business was seasonally heavy, it fell below June in many instances and the outlook for August appears to warrant about the same activity in most lines of equipment.

Worcester, Mass., July 30.—The machinery market is still surprising manufacturers. While small tool makers are taking advantage of a slight recession to replenish depleted stocks, machine builders are finding themselves unable to promise delivery on standard makes until the last of September. Grinding machinery is in great demand with delivery impossible for two months. Wheels are brisk.

Pittsburgh, July 30.—Although large awards are lacking in the machine tool market total business is holding well to the June rate. Orders consist of a few tools at a time, although several large lists are pending and in prospect. The Westinghouse Electric & Mfg. Co. continues to award tools from time to time on its third quarter list. Considerable business is pending for the new machine shop of the Aluminum Co. of America. Little additional work is coming from the railroads. Crane awards are light.

Cleveland, July 30.—July sales of machinery held up well, comparing favorably with July of last year, although somewhat off from June, 1929, in the case of most dealers and builders. An active last week helped to bring total business for the month up to previous levels. Deliveries have improved little, four weeks being stipulated on some lines of milling machines while late October or November holds for many of the larger types of machines. Although no recent price advances have been announced, some dealers have taken advantage of the new form of price lists recently distributed to mark up several lines.

Chicago, July 30.—July machine tool sales show a much heavier volume than had been expected, due largely to the pick-up of orders in the final two weeks of the month. On the whole, the July volume falls short of June, although a few houses report slightly heavier business. A comfortable carryover of orders into August is reported. Some estimates place outstanding business at $200,000 to $250,000. It is understood a western manufacturer of presses has been offered the disposal of his entire output in that line for several months by an eastern radio manufacturer. Sales of tools for dye and general machine shop work are numerous, with fair activity in lathes and shapers. A. O. Smith Corp., Milwaukee, is asking bids on a plate roll, 12 feet by 1½ inches. Rock Island and Santa Fe railroads each are inquiring for seven to eight grinding machines. Both Santa Fe and St. Paul roads have closed on additional tools. Tool builders are catching up slightly on deliveries. One maker of shapers is unable to promise deliveries earlier than October on orders being booked now.

CRANE ORDERS PLACED

Among single orders placed were: 15-ton crawler speedcrane for George A. Just Co., New York, to Forsythe Bros.; 20-ton used locomotive crane for Joseph S. Grossman, Allentown, Pa., to unstated seller; 15-ton caterpillar speedcrane for Corbetta Concrete Corp., to Forsythe Bros.; 15-ton crawler speedcrane for A. Guthrie Co., to Forsythe Bros.

CRANE ORDERS PENDING

Among single orders pending were: Gasoline driven combination shovel and crane, ¾-yard capacity, for Heineken Engineering Corp., New York; 1000 to 2000-pound electric hoist, alternating-current type, for Marks Brothers Co., Boston.

Machine Tool Show Will Attract Thousands

Four hundred carloads of exhibits, the property of 242 exhibitors, will be displayed on the 4 acres of exhibition space at the Cleveland Public auditorium, Sept. 30-Oct. 4, in connection with the annual National Machine Tool exposition. Over 2500 attendants will be on hand to supervise the operation of the machines and answer questions of visitors. Attendance at the show is confined to persons interested in machine tools and is expected to reach 15,000. As most of the displays will feature the machines in operation, an abundance of power will be required and it has been estimated that the cost of the entire exposition per operating hour will approximate $11,000.

Census of Manufactures Is Progressing

Washington, July 30.—Ways and means to bridge the gap between statistics of production and statistics of distribution and to draw up census schedules were discussed at a conference of Secretary of Commerce Lamont with an advisory committee named to assist in the 1930 census of manufacture.

Construction and Enterprise

(*Continued from Page* 307)

started construction of an addition to its foundry which will provide about 7300 square feet of floor space.

DETROIT—City will build a power plant at its municipal airport. Perry Fellows, city engineer, is preparing plans.

DETROIT—University of Detroit, Livernois avenue and Six Mile road, contemplates building an aeronautical laboratory and machine shop. Estimated cost about $75,000.

DETROIT—Detroit Aircraft Corp. has leased 50,000 square feet in one of the Studebaker plants here and will transfer its executive offices and manufacturing operations to the leased plant. The Aircraft Development Corp., 3400 Union Trust building, is a subsidiary.

FERNDALE, MICH.—Grand Trunk railroad, engineering department, 400 East Jefferson avenue, Detroit, is asking figures for building a car repair shop here.

FERNDALE, MICH.—Standard Tube & Mfg. Co., 2435 Scotten avenue, and the Forging & Steel Casting Co. will start immediate construction of plants here. The two companies, which have interlocking directorates, are headed by James R. Murray, formerly a director of the Murray Body Corp.

LANSING, MICH.—Huntington Regulator Co., which formerly had its plant in Flint, Mich., plans building a manufacturing plant here. J. F. Huntington is president.

MARYSVILLE, MICH.—Allied Motors Industries Inc., 120 South LaSalle street, Chicago, which recently purchased the Wills Ste. Clair Motor Car plant here, plans to spend about $1,000,000 to improve the plant within a year, according to William Robert Wilson, president. The new company will manufacture aircraft motors.

MUSKEGON, MICH.—West Michigan Steel Foundry Co. has been issued a permit for construction of an addition costing about $20,000.

NORTHVILLE, MICH.—Northville Laundry Co. is finishing plans for a 1-story laundry building, including a boiler plant. (Noted Feb. 28.)

PONTIAC, MICH.—Hancock Iron Works, 52 West Pike street, began taking bids through R. O. Derrick, architect, Pontiac Savings Bank building, about July 20 for a 1-story plant addition. (Noted April 25.)

ST. JOSEPH, MICH.—Auto Specialties Mfg. Co. has awarded contract for extensive plant additions to the Owens Ames Kimball Co., Grand Rapids, Mich. Estimated cost $750,000. (Noted May 9.)

CANTON, O.—Hercules Motor Co., 140 Halliwell place, has been issued a permit to construct a plant building to cost $75,000. (Noted July 18.)

CLEVELAND—J. Rutkowski Inc., 5200 Harvard avenue, plans building a machine shop, 90 x 116 feet.

CLEVELAND—Cleveland Chain & Mfg. Co., Stop 3 ABC railroad, advises it is building an addition to its Cleveland plant, 100 x 150 feet.

CLEVELAND—Ohio Overall Cleaning Co., 8008 Central avenue, plans building a plant including a boiler house, 25 x 50 feet. H. M. Morse, Finance building, is architect.

CLEVELAND—Lindsay Wire Weaving Co., 14025 Aspinwall avenue, closed bids July 25 through Bonhard & Parsson, architects, 1900 Euclid building, for a 2-story plant addition, 49 x 122 feet.

CLEVELAND—National Carbon Co., Madison avenue and West 117th street, has awarded contract for plant alterations and improvements to the A. A. Lane Construction Co., 1865 East Fifty-fifth street.

CLEVELAND—Crucible Steel Co. of America, Syracuse, N. Y., has purchased property, 156 x 180 feet, on East Fifty-fifth street, on which it will build a 2-story office and warehouse containing about 30,000 square feet of floor space, according to Frank Phelps, Cleveland manager. Local offices are at 721 Lakeside avenue.

CLEVELAND—Whiteway Stamping Co., 1201 East Fifty-fifth street, recently purchased property on East Seventieth street, where it will soon start construction of a new plant building. About $100,000 worth of new machinery and equipment will be installed, according to H. S. Whiteway, president.

CLEVELAND—Automobile Service Corp. of America, 45 Nassau street, New York, has completed plans for an automobile service building at 7404 Euclid avenue. Plans include a 1-story wash and boiler house, 100 x 115 feet, and repair shop, 27 x 256 feet. Shattuck & Layer, 134 North LaSalle street, Chicago, are architects.

FINDLAY, O.—City, care J. W. Farline, clerk, city hall, has plans for building a pumping filtration plant. H. P. Jones & Co., Toledo Trust building, Toledo, O., is engineer. Estimated cost about $400,000.

MINSTER, O.—Minster Machine Co., manufacturer of machine tools, has plans for construction of a plant addition.

SALEM, O.—Mullins Body Corp., Depot street, has plans for construction of a 1-story plant addition, 104 x 202 feet. Estimated cost about $60,000. Private plans.

SANDUSKY, O.—Plant of the Steel Blanking Co., recently incorporated, was damaged by fire. (Noted June 20.)

SANDUSKY, O.—Farrell-Cheek Steel Foundry Co., First street, is building an addition, 60 x 100 feet, to house special steel operations. Additional extensions are under consideration and may mature in the near future.

YOUNGSTOWN, O.—Electrozone Co., recently incorporated to manufacture air purifying machines, plans to start manufacture of machines as soon as facilities can be acquired. Temporary offices are at 108 North Phelps street. John M. Scott is president.

POINT PLEASANT, W. VA.—Fire and high winds recently damaged the mould loft and plant of the Marietta Mfg. Co., manufacturer of steel barges and marine boilers. Estimated loss about $100,000.

ASHLAND, WIS.—Tomlinson & Egan have taken the general contract to build a settling basin and filter plant, 34 x 160 feet, costing $45,000, for the Ashland plant of the Marathon Paper Mills Co., Wausau, Wis.

KIEL, WIS.—City of Kiel has engaged W. G. Kirchhiffer, consulting engineer, Madison, Wis., to design improvements to the water supply. Equipment will include a 750-gallon and a 300-gallon pump, air compressor, air lift pump and an additional reservoir. Theodore Brill is city clerk.

MILWAUKEE—Liberty Foundry Co., 368 State street, Wauwatosa, Wis., is about to place contracts for the erection of a brick and steel foundry addition, 26 feet high, with a floor area of 27,350 square feet.

OSHKOSH, WIS.—Bell Machine Co., 35 Jackson drive, specializing in woodworking equipment, has started work on the erection of a 2-story plant addition, 50 x 85 feet, to cost about $35,000 with machinery. E. J. Bell is president.

OSHKOSH, WIS.—Wisconsin-Timken Axle Co., High street, maker of double reduction gear axles for motor busses, railway motors, etc., is building two additions, one 40 x 40 feet and the other 24 x 30 feet.

WAUKESHA, WIS.—A. R. Schuh, city engineer, is taking bids for the erection of a 2-story structure, 60 x 100 feet, to be used as a municipal tool house, storage and service shop. It will cost about $30,000 complete.

WAUKESHA, WIS.—Glancy Malleable Iron Corp., which has started work on a brick and steel foundry addition, 118 x 208 feet, and a new shipping building, 120 x 240 feet, also will let contracts soon for a new cleaning room, 85 x 200 feet, part 2-story. A. R. Glancy, care of General Motors Corp., Detroit, is president. (Noted July 25.)

WAUPACA, WIS.—Cary & Co. Minneapolis, manufacturing oil burners, heat savers, humidifiers, oil burning furnaces and water heaters, has taken an option on the Acme Brass & Metal Works properties here with a view of opening a plant to employ about 50 people at the start. It is planned to be on a production basis in 90 days. F. C. Cary is president.

PHOENIX, ARIZ.—M. J. Grewe, 1800 East Forty-sixth avenue, Denver, has plans for establishing a sand-lime brick plant here. Estimated cost about $125,000.

ALAMEDA, CALIF.—American Foundry Co., Bay Point, Calif., has purchased the plant and property of the Dow Pump & Diesel Engine Co., Alameda, and will move here. Additional equipment will be installed. A Searle is general manager.

EMERYVILLE, CALIF.—Marchant Calculating Machine Co. has plans for construction of a 2-story plant addition. Estimated cost about $50,000.

LOS ANGELES—Willard Storage Battery Co., East 131st street and St. Clair avenue, Cleveland, will build a 1-story plant here, which will have a daily capacity of 2000 batteries, according to R. C. Norberg, president. Estimated cost $1,000,000.

WEST BERKELEY, CALIF.—California Corrugated Culvert Co., Fifth and Parker streets, has awarded contract for a 1-story plant addition. Estimated cost about $40,000.

PORTLAND, OREG.—W. P. Fuller & Co., wholesale glass and paints, will construct a boiler house, garage and 2-story warehouse at Twenty-second and Nicolai streets. Sutton & Whitney, Lewis building, are the architects.

PORTLAND, OREG.—Linde Air Products Co. will erect a 1-story plant building at 60 Knott street. Settergren Bros. have the general contract.

SALEM, OREG.—Extensions and improvements planned by the Portland Gas & Coke Co., owner of the local gas plant, will be undertaken next month at an estimated cost of $500,000.

SNOHOMISH, WASH.—The plant of the

Snohomish Iron Works was damaged by fire July 21 entailing a loss of $40,000.

CHEYENNE, WYO.—Boeing Air Transport Co., Seattle, has plans for construction of a hanger including repair shops, 155 x 200 feet, at airport here.

West Central

BURLINGTON, IOWA—Klein Mfg. Co., formerly Northwestern Stamping Co., has started construction of a plant addition, 108 x 160 feet. Machinery and equipment will be installed.

EMPORIA, KANS.—Atchison Topeka & Santa Fe railroad, Topeka, Kans., awarded contract for group of buildings including repair shops to Lundgren & Carlson, 213 Jackson street, Topeka. Estimated cost about $150,000.

KANSAS CITY, MO.—Fairfax Airport Co., Fairfax field, is taking bids for construction of a 2-story hotel and shop building, with basement, 56 x 160 feet.

WAHOO, NEBR.—City will soon take bids for improvements to its electric light plant including a 500 kilowatt turbine condenser and a 500 kilowatt oil engine. Burns & McDonnell, Interstate building, Kansas City, Mo., are engineers. (Noted March 21.)

GRAND FORKS, N. D.—State highway department, care secretary, state capitol, Bismarck, N. D., closed bids July 26 for an office, shop and equipment building here.

Southern States

TAMPA, FLA.—American International Airways has plans for construction of air terminal here in the near future. Hangars, repair shops are included in the plans. John K. Montgomery is president.

OKLAHOMA CITY, OKLA.—Prest-O-Lite Co., 30 East Forty-second street, New York, has awarded contract for a plant here, 58 x 60x 131 feet, to C. B. Hoffman, Oklahoma City. (Noted July 11.)

TULSA, OKLA.—Braniff Air Lines Inc., care Paul R. Braniff, 2004 West Sixteenth street, Oklahoma City, Okla., subsidiary of Universal Ail Lines, will soon start construction of a hangar, 135 x 141 feet, including repair shop. (Noted May 9.)

WEWOKA, OKLA.—Independent Natural Gas Co., subsidiary of Independent Oil & Gas Co., has completed plans for construction of an oil absorption gasoline plant near Wewoka.

KNOXVILLE, TENN.—Knoxville Structural Steel Co., recently organized to manufacture fabricated steel, will soon start construction of a plant on a 2¼-acre tract between Central avenue and the Coster yard tracks. Estimated cost about $100,000. H. R. Adams is president.

HOUSTON, TEX.—Hurricane Motor Co., Inc., 2103 Walker street, plans construction of plant for manufacturing airplane motors. Alex Clark is president.

HOUSTON, TEX.—Humble Oil & Refining Co. will spend $2,500,000 on adidtions to its Baytown, Tex., refinery, the principal enlargement including building of a plant where gasoline will be manufactured by the hydrogenation process. John Rowe is purchasing agent in charge of refinery operations.

SAN ANTONIO, TEX.—B. Hammond, care W. S. Forester, Travis building, has plans for construction of a 2-story plant for manufacturing airplanes. A machine shop is included in the plans.

Canada

BRANDON, MAN.—Canadian Brown Steel Tank Co. is contemplating the erection of a large plant at Twentieth street and Pacific avenue, here.

EDMUNDSTON, N. B.—H. G. Acres & Co. Ltd., consulting engineers, Niagara Falls, Ont., has been appointed to rebuild the municipal hydroelectric plant here at a cost of $300,000. Plans and specifications are being prepared and bids will be called immediately for construction work and equipment. (Noted July 25.)

BRAMPTON, ONT.—Engineer McClory has recommended the installation of a standby pump and a booster pump for the waterworks plant.

COPPER CLIFF, ONT.—Canadian Industries Ltd. propose to erect a large acid plant in close proximity to the International Nickel Company's refinery here. The sulphur fumes from the nickel plant will be used for the manufacture of sulphuric acid, nitre cake and other heavy chemicals. Building construction will be started next fall.

ST. CATHARINES, ONT.—Bakelite Corp. of Canada Ltd., 163 Dufferin street, Toronto, Ont., has purchased a site here and proposes to erect a manufacturing plant.

TORONTO, ONT.—Building Repairs & Alterations Ltd., Royal Bank building, will build a 2-story manufacturing plant, 50 x 80 feet, on Duchess street.

WALKERVILLE, ONT.—Chrysler Corp. of Canada Ltd., which recently completed the erection of the first unit of its proposed plant here at a cost of $1,750,000, now proposes to erect a large administrative building and several other units. (Noted April 11.)

MONTREAL, QUE.—Progress Spring Bed Co. Ltd., 988 Debullion street, will call for tenders at an early date for the erection of a 5-story concrete construction, manufacturing plant. M. E. Cashof, 1237 Phillips square is architect.

Recent Incorporations

BOSTON—Talking Picture Equipment Co., 46 Church street, has been incorporated with 1000 shares of no par stock to manufacture machines and equipment, by Harry Cohen.

BOSTON—Maitland Gypsum Co. has been incorporated with $300,000 class A shares and 3000 shares of no par stock to mine and market gypsum. Daniel W. Donahue, Cambridge, Mass., is president.

DANVERS, MASS.—Poole Shoe Machinery Co., 3 Holton street, has been incorporated with 5000 shares of no par stock to manufacture shoe machinery, parts and equipment. Roscoe D. Poole is president.

HAVERHILL, MASS.—Follett & Kinney Machine Co. Inc., 58 Essex street, has been incorporated with $25,000 capital to operate a general foundry and machine shop. Freeman W. Follett is president and treasurer.

HAVERHILL, MASS.—Pope Machinery Corp., 280 River street, has been incorporated with $100,000 capital to manufacture motors, ball bearings, pulleys, etc. Lyman Pope is president and treasurer.

LYNN, MASS.—Steinbar Electrical Co. Inc. has been incorporated with 500 shares of no par stock to manufacture motors, dynamos and accessories. Edward J. Meagher, 36 Thomas road, Wellesley, Mass., is one of the incorporators.

SPRINGFIELD, MASS.—Granville Bros. Aircraft Inc. has been incorporated with 30,000 of preferred and 300 shares of common stock to manufacture aircraft navigation accessories and equipment. James C. Tait, 192 Springfield street, is treasurer.

DETROIT—Streamline Pump Co., 4744 Twelfth street, has been incorporated with $10,000 capital to manufacture and deal in electrical motor driven pumps, by Frank X. Summers.

DETROIT—Auto & Plane Engineering Co., 719 Fisher building, has been incorporated with 1000 shares of no par stock to engage in manufacturing.

DETROIT—Rim & Wheel Service Co., 5132 Third avenue, has been incorporated with $75,000 capital to manufacture and deal in wheels and rims, by Charles F. Carney.

DETROIT—Tinsey-Bayer Iron Works, 12887 Eaton avenue, has been incorporated with $25,000 capital to engage in ornamental iron work.

DETROIT—Artistic Lighting Fixture Co.,

7138 Fenkell avenue, has been incorporated with $7500 capital to manufacture and install lighting fixtures.

DETROIT—Aircraft Development Corp., 3400 Union Trust building, has been incorporated with 1000 shares of no par stock to manufacture and operate aircraft, by Edward S. Evans.

DETROIT—Concealed Bed Corp. of Detroit, 3288 Fullerton avenue, has been incorporated with $50,000 capital to manufacture and deal in beds, by Edward I. Canvasser.

GRAND RAPIDS, MICH.—Whitmar-Leonard Inc., 17 William street, has been incorporated with $50,000 capital to manufacture gliders, etc., by Charles S. Leonard.

HANCOCK, MICH.—Peterson Boiler & Engineering Co. has been incorporated with $10,000 capital to manufacture and deal in machinery, by Alfred H. Wadewitz.

LANSING, MICH.—Foster Airways Corp., 224 South Capitol street, has been incorporated wth 70,000 shares of no par stock to engage in commercial aviaton and repairing of airplanes, by James D. Foster.

WAYNE, MICH.—Weldon Foundry Co. has been incorporated with 5000 shares of no par stock to operate a general iron and metal foundry, by John Enot.

HOBOKEN, N. J.—Owens Engineering & Construction Co. has been incorporated with $100,000 capital, by Pierson, Schroeder & Brand, 80 Washington avenue, Hoboken.

KEARNY, N. J.—Acme Tool & Machine Co. has been incorporated with $50,000 capital, by Frank G. Masini, Kearny.

NEW YORK—Veteran Iron Works has been incorporated with $5000 capital, by Cooper & Matzkin, 2 Lafayette street, New York.

NEW YORK—United Machine & Tool Corp. has been incorporated with $100,000 capital, by J. McLaren, Tribune building, New York.

NEW YORK—Biltmore Cab Mfg. Corp. has been incorporated with $50,000 capital, by R. Sellay, 250 West Fifty-seventh street.

NEW YORK—Alpha Wire Corp. has been incorporated with $50,000 capital, by B. E. Greenspan and A. Bernadik, 305 Broadway.

PORT CHESTER, N. Y.—American Safety Boiler Control Corp. has been incorporated with 500 shares of common stock, by W. A. Davidson, Port Chester.

ZANESVILLE, O.—Goodman Iron & Metal Co. has been incorporated with 250 shares of no par stock, by Henry Goodman.

PHILADELPHIA — Gralnick Sheet Metal Works Inc. has been incorporated with $10,000 capital to manufacture and deal in metal products, by Isaac Gralnick, 125 Pine street.

PHILADELPHIA—Watkins Rebabbitting has been incorporated with $15,000 capital to manufacture and sell babbitt and babbitt lined bearings, by Carl W. Funk, 3127 Queen lane, Philadelphia.

PITTSBURGH—Iron City Tool Works has been incorporated with $50,000 capital to manufacture tools and equipment. J. Crossman Hays, 223 Gladstone road, Pittsburgh, is treasurer.

WILLIAMSPORT, PA.—S. Arthur Fisher Body Co. Inc. has been incorporated with $60,000 capital to manufacture and repair automobile bodies. Paul M. Cheesman, 844 High street, is treasurer.

TORONTO, ONT.—Folwell Engineering Co. of Canada Ltd. has been incorporated to carry on a general engineering, construction and contracting business, with $50,000 capital, by Charles H. C. Leggott, Harry L. Wright, Edna Fitzsimmons, all of Toronto.

MONTREAL, QUE.—Consolidated Combustion Ltd. has been incorporated to manufacture and deal in stoves, ranges, furnaces, boilers, etc., with a capital of $500,000 and 100,000 shares of no par stock, by Peter J. Usher, Arthur G. E. Rankin and George A. Cairns, all of Montreal.

MONTREAL, QUE.—Automatic Musical Instrument Co. Ltd. has been incorporated to manufacture and deal in all classes of automatic musical instruments, with a capital of 300,000 shares of no par stock, by Walter R. Henry, Paul G. Michaud, Isabel Robinson, all of Montreal.

New Trade Publications

ELECTRIC METERS—Sangamo Electric Co., Springfield, Ill., describes in a current bulletin its amperehour meter, with illustrations of details and description of its operation.

DRILLS—A description of its 16-inch sensitive drill forms the subject of a bulletin by the Buffalo Forge Co., Buffalo. Full specifications are given and illustrations show the machines.

GRINDING MACHINES—Norton Co., Worcester, Mass., in two bulletins illustrates two sizes of its swing frame machines for high-speed snagging. Description, specifications and illustrations cover the subject.

MARINE OIL ENGINES—Ingersoll-Rand Co., New York, describes in a current illustrated booklet the application of its marine oil engines for oil and electric drive to various types of craft.

ARC WELDING—Lincoln Electric Co., Cleveland, has issued two leaflets to illustrate its methods of arc welding in steel construction, one in strengthening a building frame for additional stories and the other by use of steel plates for floor construction.

ELECTRICAL EQUIPMENT—Recent publications by the Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., include: Linestarters and linestart motors; multiple operator arc welding equipment; totally-enclosed direct-current motor; panelboards.

SUPERHEATER—Superheater Co., New York, has issued a bulletin on its multiple-loop, single-pass superheater, arranged to show how the same principles apply to superheaters for stationary boilers. It is fully illustrated to show principles and applications.

TWIST DRILLS—New Process Twist Drill Co., Taunton, Mass., will issue shortly a catalog covering its complete line of high speed and carbon twist drills, with illustrations showing the methods of manufacturing forged twist drills.

WELDING WIRE—Importance of materials in producing welding wire for best results is stressed in a leaflet by the Page Steel & Wire Co., Bridgeport, Conn. It explains why welding wire must be subjected to processing and must be made of high grade iron and steel.

DRYING SYSTEMS—Drying Systems, Inc., 1800 Foster avenue, Chicago, describes the advantages and construction of its traveling fan carriage for drying material. The company also is circulating a description of an installation of its equipment in the core room of the Studebaker Corp., South Bend, Ind.

BRONZE BEARINGS—Johnson Bronze Co., New Castle, Pa., sets forth in a current booklet the proposition that industry has found a way to save money. The method of saving is by the use of bronze bearings in machinery, to eliminate many sources of loss from friction. The booklet is illustrated to show application of bearings to many varieties of mechanisms.

AUTOMATIC SCREW MACHINES—In a current booklet the Landis Machine Co., Waynesboro, Pa., gives descriptions of the company's die heads, pipe threading and cutting-off machines, staybolt, pipe and nipple threading machines, automatic forming and threading machines and collapsible taps. It is illustrated and gives data of the various threads.

NICKEL CAST IRON—International Nickel Co. Inc., New York, has issued two publications in its series on nickel cast iron. One is an introduction to nickel cast iron, a discussion of cast iron in the engineering field, the trend toward improvement in physical and mechanical properties and the role of alloys in that connection. The other treats of the properties and applications of nickel cast iron, superseding a previous bulletin on the same subject.

STEELWORKS—A romance of industry as exemplified by the growth of Bolckow, Vaughan & Co., Middlesbrough, Eng., has been published as an illustrated book by that firm, which is represented in the United States by Frank Samuel & Co., Philadelphia. The book treats of the founders, the present firm and the various works. It is an interesting chronicle of the growth of a great steelworks from small beginnings.

MOTORS—General Electric Co., Schenectady, N. Y., has issued a 32-page bulletin on its motors for driving metal-working machinery. It contains illustrations of the various types of motors and charts which aid in selection for a wide variety of purposes. Operating costs of the different types are discussed, as are installation costs, production, working conditions and control. The bulletin also contains illustrations from photographs of motors mounted on various types of machines and several typical installations.

CRANES, SHOVELS, DRAGLINES—Link-Belt Co., 300 West Pershing road, Chicago, has issued a bulletin on the cranes, shovels and draglines that it manufactures. The fore part of the bulletin is well illustrated with reproductions from photographs of the various crawler type cranes showing the details of construction and their use under different conditions. Drawings of the different types with safe lifting capacities for each are included as are drawings, clearance dimensions and operating data when they are used as shovels, draglines, trench hoes and cranes. The later part of the bulletin is devoted to illustrations, drawings, tables of safe lifting capacities and clearance dimensions of the diesel, electric and steam locomotive cranes that the company manufactures.

European Iron and Steel Statistics

Gross Tons

Pig Iron Production

Monthly Average	United Kingdom	France	Belgium	Luxemburg	Germany*
1912	729,000	405,000	192,000	184,800	1,279,200
1913	855,000	427,200	203,800	209,000	1,374,400
1921	218,000	280,300	71,800	79,600	643,200
1922	408,500	428,900	132,300	138,200	770,500
1923	620,000	445,600	179,100	115,400	404,700
1924	609,000	631,100	230,300	177,000	640,500
1925	521,800	696,800	208,500	192,300	834,500
1926	203,500	770,500	278,800	206,100	791,000
1927	607,800	762,408	308,750	223,392	241,483
1928	550,942	836,958	320,760	227,242	968,350
1928					
January	560,500	796,400	309,700	226,000	1,162,100
February	550,800	772,100	297,300	216,700	1,104,800
March	592,600	843,600	321,400	236,500	1,152,200
April	563,100	821,100	313,220	223,400	1,031,200
May	591,500	854,500	323,700	230,200	1,027,700
June	563,700	830,800	316,000	226,900	1,005,400
July	537,800	822,900	319,300	221,300	1,019,400
August	519,000	844,600	323,500	229,900	1,014,900
September	503,900	909,200	320,000	227,800	970,000
October	543,600	843,600	338,800	232,700	1,000,000
November	544,400	836,700	326,300	225,000	263,300
December	540,400	868,000	339,900	230,500	869,200
1929					
January	563,900	888,900	345,200	237,900	1,081,200
February	519,600	769,800	297,600	205,900	966,400
March	590,500	866,200	328,800	233,300	1,044,700
April	611,300	857,400	330,900	231,400	1,094,700
May	654,800	.....	.....	.....	1,115,400

*German pre-war boundaries for 1912 and 1913; from 1919 the figures do not include the Saar district returns.

Ingots and Castings Production

Monthly Average	United Kingdom	France	Belgium	Luxemburg	Germany*
1912	566,000	363,000	206,000	79,400	1,339,600
1913	638,600	384,500	202,300	109,000	1,445,700
1921	308,600	254,500	62,800	61,900	819,700
1922	490,100	372,000	128,400	114,300	960,500
1923	706,800	419,100	186,200	98,300	517,000
1924	685,100	566,000	234,700	154,300	806,500
1925	615,500	608,300	197,700	170,800	1,000,000
1926	296,700	687,900	276,800	184,100	1,012,500
1927	758,284	678,700	304,692	202,625	707,350
1928	710,425	769,793	322,750	210,967	1,190,842
1928					
January	626,200	738,300	310,700	209,600	1,448,000
February	764,400	726,500	305,600	201,800	1,302,800
March	793,300	793,400	321,100	216,900	1,399,800
April	644,100	724,500	300,300	199,400	1,142,800
May	752,700	781,600	320,100	211,400	1,230,700
June	709,000	784,600	324,300	211,600	1,276,300
July	666,900	739,300	314,700	204,400	1,294,500
August	648,300	780,600	336,800	220,700	1,310,900
September	718,600	745,200	325,700	205,900	1,171,700
October	756,000	821,000	350,800	225,400	1,286,200
November	762,500	787,500	334,800	210,100	352,800
December	683,100	815,000	328,100	214,400	1,073,600
1929					
January	764,600	828,800	351,400	221,100	1,446,900
February	774,900	731,400	297,300	192,300	1,249,900
March	859,900	791,400	343,400	217,900	1,295,800
April	808,600	795,400	336,600	222,600	1,394,100
May	843,800	.....	.....	.....	1,398,800

Imports

	United Kingdom	Belgium and † France	Luxemburg	Germany*
Average monthly 1912	166,400	16,400	87,000	27,300
Average monthly 1913	185,900	14,100	72,900	25,000
Average monthly 1921	136,700	41,300	43,300	54,000
Average monthly 1922	73,500	63,300	47,700	152,300
Average monthly 1923	110,200	58,500	43,700	145,000
Average monthly 1924	202,400	57,100	46,800	160,000
Average monthly 1925	226,700	14,100	44,500	98,400
Average monthly 1926	311,700	14,200	50,200	86,500
Average monthly 1927	367,175	13,517	53,283	186,117
Average monthly 1928	241,333	11,475	72,808	168,308
1928				
January	283,900	6,000	65,000	200,800
February	286,900	10,100	72,000	179,600
March	271,500	16,800	70,200	187,700
April	252,700	10,700	61,700	189,100
May	236,900	10,400	63,800	164,800
June	210,400	9,800	74,200	162,200
July	219,000	8,700	71,900	162,200
August	272,400	9,400	75,500	175,600
September	184,500	14,900	79,900	155,400
October	261,400	12,200	81,900	147,800
November	232,800	11,000	84,200	125,100
December	183,600	17,700	73,400	169,400
1929				
January	244,300	11,200	84,700	159,400
February	160,000	15,900	67,600	99,100
March	182,100	.....	80,700	105,200
April	261,900	.....	93,600	118,400
May	257,300	.....	.....	.....

*Luxemburg is included with Germany in 1912 and 1913.

Exports

	United Kingdom	Belgium and † France	Luxemburg	Germany*
Average monthly 1912	400,600	41,500	124,500	482,400
Average monthly 1913	414,100	51,600	129,200	517,300
Average monthly 1921	141,400	133,800	75,600	160,000
Average monthly 1922	283,400	161,400	175,900	209,700
Average monthly 1923	360,000	181,900	207,900	110,000
Average monthly 1924	321,100	231,100	282,200	130,000
Average monthly 1925	310,900	321,700	262,800	267,600
Average monthly 1926	249,000	343,800	308,900	402,000
Average monthly 1927	352,475	466,875	383,908	352,525
Average monthly 1928	355,100	413,958	371,917	392,909
1928				
January	332,200	408,100	274,600	363,026
February	317,000	462,700	395,500	390,776
March	409,300	443,500	453,100	334,798
April	344,300	398,800	323,600	412,810
May	359,000	387,000	332,700	378,500
June	365,900	376,000	375,100	420,500
July	333,100	332,900	342,000	431,500
August	369,800	461,500	294,700	461,200
September	295,100	441,000	312,400	436,500
October	377,400	416,500	425,900	369,600
November	399,400	439,800	341,900	366,800
December	358,700	399,700	591,500	248,900
1929				
January	421,200	383,500	256,500	370,600
February	380,100	357,300	277,400	303,300
March	350,100	.....	377,500	320,900
April	339,800	313,900	405,500	595,300
May	442,800	.....	.....	.....

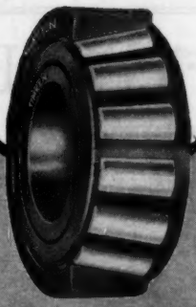
†Luxemburg included with Belgium from 1922 onward.

American Iron and Steel Exports, Imports

Gross Tons

	Imports	Exports
1929		
January	54,793	274,296
February	58,146	259,711
March	52,622	270,925
April	54,337	277,580
May	74,272	261,516
1928		
January	58,635	205,766
February	47,628	185,915
March	74,128	221,935
April	72,329	215,184
May	72,106	267,890
June	65,819	262,052
July	47,830	253,336
August	69,914	287,297
September	57,782	228,056
October	63,880	256,870
November	67,103	256,886
December	55,199	221,810
Total	782,694	2,862,997
1927		
January	63,404	215,235
February	49,451	166,128
March	61,872	171,094
April	60,374	192,339
May	79,814	202,708
June	69,017	184,364
July	61,112	190,502
August	68,386	175,636
September	58,464	166,352
October	52,503	170,255
November	61,882	177,928
December	64,188	168,428
Total	750,467	2,180,969
1926		
January	79,067	174,585
February	100,213	157,187
March	93,107	169,438
April	107,636	194,449
May	108,731	173,418
June	124,215	159,506
July	82,411	194,717
August	91,578	171,588
September	85,484	182,071
October	81,830	172,070
November	81,259	219,830
December	75,559	198,189
Total	1,111,090	2,167,048

Yearly Totals		
1925	943,240	1,762,571
1924	556,281	1,805,064
1923	734,734	2,009,141
1922	712,895	2,005,100
1921	135,825	2,150,276
1920	421,274	4,934,087
1919	322,264	4,397,295
1918	169,110	5,338,019
1917	330,301	6,465,053
1916	328,965	6,110,732
1915	282,396	3,532,564
1914	289,775	1,549,554
1913	317,260	2,745,635
1912	225,072	2,947,596
1911	262,457	2,187,725
1910	510,730	1,537,943
1909	363,984	1,243,583
1908	205,845	964,242
1907	662,358	1,301,981
1906	577,809	1,325,740
1905	416,000	1,011,255
1904	266,398	1,167,674
1903	1,178,797	326,590
1902	1,212,484	1,103,664
1901	221,297	700,852
1900	209,955	1,154,284



TIMKEN BEARING EQUIPPED

an economic force pitted against waste —*wherever wheels and shafts turn*

A BASIC idea thirty years ago, "Timken Bearing Equipped" is today an economic force pitted against waste . . . typifying a huge replacement program which sweeps all before it.

As in all industry, users of Timken-equipped steel mill machinery find in Timken the *one bearing that does all things well* . . . whether the loads are all *radial* . . . all *thrust . . . or a combination of both.*

Roll necks, pinion stands, mill table rolls, transfer tables, hot and cold saws, charging cars, ingot cars, power hammers, cranes, shears . . . all have yielded to the tremendous power and lubrication savings, maintenance elimination and endurance made possible only by the exclusive combination of Timken tapered construction . . . Timken *POSITIVELY ALIGNED ROLLS* . . . and Timken steel.

"Timken-Equipped" represents the difference between waste and conservation, between antiquated and modern . . . a deciding factor in building and buying mechanical equipment . . . wherever wheels and shafts turn.

THE TIMKEN ROLLER BEARING COMPANY
C A N T O N , O H I O

TIMKEN *Tapered Roller* **BEARINGS**

Pipe and Tube Prices—Plate Extras

Steel Pipe

Pittsburgh and Lorain basing discounts, jobber's carloads.

Evanston, Ill., and Indiana Harbor, Ind., take differential 2 points less discount.

Chicago takes differential 2½ points less than Pittsburgh-Lorain basis.

Butt Weld

	Black	Galvanized
⅛-inch	45	19½
¼ and ⅜-inch	51	25½
½-inch	56	42½
¾-inch	60	48½
1 to 3-inch	62	50½

Lap Weld

2-inch	55	43½
2½ to 6-inch	59	47½
7 to 8-inch	56	43½
9 and 10-inch	54	41½
11 and 12-inch	53	40½

REAMED AND DRIFTED

Butt Weld

1 to 3-inch	60	48½

Lap Weld

2-inch	53	41½
2½ to 6-inch	57	45½

EXTRA STRONG—PLAIN ENDS

Butt Weld

⅛-inch	41	24½
¼ and ⅜-inch	47	30½
½-inch	53	42½
¾-inch	58	47½
1 to 1½-inch	60	49½
2 to 3-inch	61	50½

Lap Weld

2-inch	53	42½
2½ to 4-inch	57	46½
4½ to 6-inch	56	45½
7 to 8-inch	52	39½
9 and 10-inch	45	32½
11 and 12-inch	44	31½

DOUBLE EXTRA STRONG

Butt Weld

½-inch	42	32½
¾ to 1½-inch	45	35½
2 to 2½-inch	47	37½

To large jobbers these discounts are increased by 1 point and two supplementary discounts of 5 per cent on black, and 1½ points and two supplementary discounts of 5 per cent on galvanized.

Wrought Iron Pipe

Pittsburgh basing discounts, jobbers' carloads. Individual quotations made on delivered basis.

THREADS AND COUPLINGS

Butt Weld

	Black.	Galv.
¼ and ⅜-inch	+11	+36
½-inch	23	5
¾-inch	28	11
1 and 1¼-inch	31	15
1½ and 2-inch	35	18

Lap Weld

1¼ and 1½-inch	Upon application	
2-inch	23	9
2½ to 3½-inch	28	12
4 to 6-inch	30	17
7 and 8-inch	29	16
9 to 12-inch	26	11

REAMED AND DRIFTED

2-inch to 6-inch—Two points less than above

EXTRA STRONG, PLAIN ENDS

¼ and ⅜-inch	+13	+48
½-inch	23	7
¾-inch	28	12
1 to 2-inch	34	18

Lap Weld

2-inch	29	13
2½ to 4-inch	34	20
4½ to 6-inch	33	19
7 and 8-inch	31	17
9 to 12-inch	21	8

DOUBLE EXTRA STRONG

Butt Weld

½-inch	+47½	+59½
¾-inch	+28	+40
1-inch	+34	+46
1¼-inch	+28	+40
1½-inch	+27	+39

Lap Weld

2 and 2½-inch	+13	+25
3 to 4-inch	+ 8	+17
4½ to 6-inch	+ 9	+18
8-inch	+12	.....

Jobbers obtain additional preferential discounts of 1, 5 and 2½ on black and galvanized wrought iron pipe.

On extra or double extra strong pipe fitted with threads and couplings basing discount lowered 5 points from plain end price. Fitted with threads only, basing discount lowered 3 points for random lengths.

Boiler Tubes

Pittsburgh carload discounts

STEEL (Lap Weld)

2 and 2¼-inch	40 off
2½ and 2¾-inch	48 off
3-inch	54 off
3¼ to 3¾-inch	56 off
4-inch	59 off
4½ to 6-inch	48 off

Subject to two 5 per cent discounts on full carload shipments. On less than 10,000 pounds, base discount reduced 6 points and one 5 per cent allowed. Over 10,000 pounds to carload, base discount reduced 4 points and two 5 per cents allowed.

CHARCOAL IRON

1½-inch	1 off
1¾-inch	8 off
2 and 2¼-inch	13 off
2½ and 2¾-inch	16 off
3-inch	17 off
3¾ to 3½-inch	18 off
4-inch	20 off
4½-inch	21 off

Subject to 10 per cent discount on full carload lots. On less than 10,000 pounds, base discount reduced 2 points and no preferential allowed. On 10,000 pounds to carload, 5 per cent preferential allowed.

SEAMLESS COLD DRAWN

1-inch	63 off
1¼ and 1½-inch	55 off
1¾-inch	39 off
2 and 2¼-inch	34 off
2½ and 2¾-inch	42 off
3-inch	48 off
3¼ and 3½-inch	50 off
4-inch	53 off
4½, 5 and 6-inch	42 off

SEAMLESS HOT ROLLED

1¾-inch	39 off
2 and 2¼-inch	40 off
2½ and 2¾-inch	48 off
3-inch	54 off
3¼ and 3½-inch	56 off
4-inch	59 off
4½, 5 and 6-inch	48 off

Subject to 5 per cent supplementary discount for carload lots. On less than 10,000 pounds, base discount reduced 6 points. On 10,000 pounds to carload, base discount reduced 4 points and one 5 per cent allowed.

SEAMLESS STEEL MERCHANT BOILER TUBES

Extras:

Add 5 per cent for lengths over 24 feet and not over 26 feet.

Smaller tubes than 1-inch and lighter than standard gage to be sold at mechanical tubing list and discount.

Intermediate sizes and gages not listed above take price of next larger outside diameter and heavier gage.

SEAMLESS STEEL MECHANICAL TUBING

Base Discounts on New List July 1, 1925

Carbon 0.10 to 0.30 per cent.....50 to 55 off
Carbon 0.30 to 0.40 per cent.....45 to 50 off

Plus usual extras for forming and for long lengths over 18 feet and for commercially exact lengths.

SEAMLESS STEEL LOCOMOTIVE AND SUPERHEATER TUBES

Outside diameter	Gage	Net prices per foot f.o.b. Pittsburgh Price
2-inch	12-gage	14¼c
2-inch	11-gage	15c
2-inch	10-gage	16c
2¼-inch	12-gage	16c
2¼-inch	11-gage	17c
2¼-inch	10-gage	18c
3-inch	7-gage	33c
5⅝-inch	9-gage	50c
5½-inch	9-gage	52c

Plus usual extras for forming and for lengths over 24 feet.

Plate Extras

BASE

Rectangular plates, tank steel or conforming to manufacturers' Standard Specifications for structural steel, date Nov. 24, 1922, or equivalent, ¼-inch thick and over on thinnest edge (except for ¼-inch or 72 inches wide when ordered to weight in pounds per square foot—see width and gage extras), 100 inches wide and under, down to but not including 6 inches wide, 5 feet 0 inches long up to published limit in length but not over 80 feet 0 inch, are base. Extras per pound for width or diameter.

All Plates Rectangular or Otherwise

¼-inch thick and heavier, but not less than 11 pounds per square foot, if ordered to weight.

Over 100 to and including 110 inches	.05c
Over 110 to and including 115 inches	.10c
Over 115 to and including 120 inches	.15c
Over 120 to and including 125 inches	.25c
Over 125 to and including 128 inches	.50c

Plates less than ¼-inch or lighter than 11 pounds per square foot.

Over 72 to and including 84 inches	.10c
Over 84 to and including 96 inches	.20c
Over 96 to and including 100 inches	.30c

Over 100 inches add .35c to width extras for plates ¼-inch thick and heavier.

GAGE

Plates Not Exceeding 72 Inches Wide

Plates less than ¼-inch gage, to and including $\frac{7}{16}$-inch; or lighter than 10.2 pounds per square foot, to and including 7.65 pounds square foot..... .20c

Plates Over 72 Inches Wide

Plates less than ¼-inch gage, to and including $\frac{7}{16}$-inch; or lighter than 11 pounds per square foot, to but not including 7.65 pounds square foot.... .20c

Plates ordered 7.65 pounds square foot .30c

QUALITIES

Pressing steel	.10c
Flange steel (boiler grade)	.15c
Ordinary firebox steel	.20c
Stillbottom steel	.30c
Locomotive firebox steel	.50c
Marine steel	1.50c
Hull materials subject to U. S. Navy Dept. specifications for medium or soft steel	.10c
High tensile hull steel subject to U. S. navy department or equivalent specifications	1.00c
Boiler steel subject to U. S. navy department specifications, classes A-B	1.50c

Hull plates to hull specifications, required to stand cold flanging, take extra for flange steel.

Floor Plates

Checkered plates 1.75c

Checkered plates are not furnished to sketch and are rolled from "Stock Steel" only. No physical tests will be made on checkered plates.

INSPECTION

Mill inspection .....No extra

Charges for other inspection, such as Lloyd's or American bureau of shipping, will be made by inspection bureau direct to buyer.

CUTTING

LENGTH OR DIAMETER

All Plates, Rectangular or Otherwise

Five feet and over up to published limit of length, but not over 80 feet	No extra
Under 5 feet to 3 feet inclusive	.10c
Under 3 feet to 2 feet inclusive	.25c
Under 2 feet to 1 foot inclusive	.50c
Under 1 foot	1.55c
Over 80 feet to 100 feet inclusive	.10c

Over 100 feet add .25c plus .05c for every additional 2 feet or fraction thereof.

Regular Sketches

With not more than four straight cuts. (Including straight taper plates)

Additional extra ..... .10c

Irregular Sketches

With not more than four straight cuts. (Sketches cannot be sheared with reentrant angles)

Additional extra ..... .20c